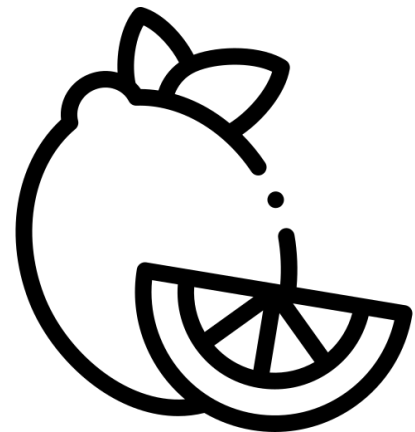


FOOD & FOOD SYSTEMS

Module 1 Food, Identity, and Perspective •
Unit 2 Our Classroom Snack



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Unit Overview

Unit 2: Our Classroom Snack | 12 Lessons, 14-17 Hours, 1 Week

In this unit, students address the Guiding Question: *How can we work together to create a classroom snack that everyone enjoys?* This unit gives students a chance to practice being Kind and Compassionate Community Members and Perseverant as they move through the process of creating a classroom snack that accounts for all students' unique needs and preferences. Throughout this unit, students refine their understanding of the PBL Process steps by engaging in a regular practice of identifying where they are in the process and documenting the strategies and tools they are using at each of these steps to create a PBL toolkit. **Note:** Students will eventually use this toolkit as a reference when they are independently developing and executing their Capstone projects at the end of the course. This reflective practice related to the PBL Process and PBL toolkit will occur regularly throughout Module 1 from this point forward.

In addition to gaining experience with the PBL Process and focus DSOs, students are introduced to more foundational knowledge about food and food preparation. They learn about food allergies, special diets, and food safety procedures. They dig back into cultural foodways as they explore their own biases against unfamiliar foods. Students consult a variety of sources as they conduct research on snack options and practice persuasive writing to help the class come to consensus on their final choice. They use math to help them think about appropriate portions of the food for sharing with large groups. Students examine recipes for their common features and eventually develop their own (which will be included in the class food blog or cookbook at the end of the module). Finally, they follow their own procedure and recipe to prepare the classroom snack, enjoy it as a group, and reflect on the experience.

Lesson	Lesson Summary
Lesson 1 Introduction to a classroom snack	The class is introduced to the unit project of making a classroom snack as well as the Guiding Question: <i>How can we work together to create a classroom snack that everyone enjoys?</i> Students share initial ideas for how to approach this unit project, revisiting the PBL Process and beginning to create a toolkit to keep track of strategies and tools to support

	their project work.
Lesson 2 Food allergies, special diets, and preferences	Students begin to gather information as they continue their work on the classroom snack project. They begin to consider the dietary needs of others in the classroom, including allergies, special diets, and preferences. They continue to reflect on the PBL Process and track their ideas for strategies and tools that will support their ongoing project work.
Lesson 3 Ew and yuck and gross	The class reads <i>The Sandwich Swap</i> by Queen Rania Al-Abdullah and Kelly DiPucchio. Through this story, students consider how people react to foods that are unfamiliar. Students reflect on how to make sure that everyone's foods and cultures are treated respectfully and fairly in the classroom.
Lesson 4 Food opinions	Students consider how their own experiences with and preferences for food impact their ideas about foods that other people eat. Students revisit <i>The Sandwich Swap</i> to recognize that certain foods in the story were associated with certain regions of the world. They then explore an interactive online food map to notice and wonder about the wide world of food, and to pay attention to their own biases and opinions about foods that they are unfamiliar with.
Lesson 5 My taste, your taste	Students further explore some of their food biases and preferences by engaging with taste samples to think about the roots of different flavors and how they taste to them. They also talk with peers about how they experience taste and recognize that people might experience different tastes differently.
Lesson 6 Sandwich Swap math	Students have worked with the book <i>The Sandwich Swap</i> , which showed that sharing food with others can help build understanding. For the next two lessons, students focus on how to use multiplication to compare amounts. They determine how many times more items students in the book would need in order to share their favorite lunches with their classmates at the end of the book.

Lesson 7 Using math to share my favorite lunch	Now that students have calculated multiplicative comparisons from <i>The Sandwich Swap</i> , they do the same thing with their own favorite lunches. They calculate the ingredients and items needed to provide their own favorite lunch for their classmates, modeling their work with multiplication and division equations as needed.
Lesson 8 Perseverance in the kitchen	In this lesson, students revisit the work they've done so far and consider how their efforts to seek knowledge will impact their work to create a classroom snack. Students then read and analyze an article about someone who creates and tests new recipes for his job—modeling some of the same thinking they've been doing with regard to the classroom snack project. They learn that this process isn't easy, even for people who do it professionally.
Lesson 9 Coming to consensus	In this lesson, students revisit their project plan and begin to refine their approach by incorporating information and perspectives they've gained from the previous lessons. They discuss any remaining questions about the project, establishing a final set of requirements and limitations. Then, taking this into account, students engage in a brief research period to find recipe options that could work for creating the classroom snack. Finally, the class engages in a persuasive writing exercise to help them come to consensus on the classroom snack.
Lesson 10 Writing a recipe	Students work in small groups to compare a set of recipes, identifying their common features. This informs the group's process for collaboratively writing their own recipe so that everyone in the class will know how to make the classroom snack whenever it is needed.
Lesson 11 Safety first	In this lesson, students engage with video and informational text resources to learn about the importance of appropriate safety procedures during food preparation. They add any relevant food safety prep steps to the recipe for their classroom snack.
Lesson 12 Create, share, and	Students follow the recipe they developed to create a classroom snack that everyone can enjoy safely. Then, they

reflect: Our classroom snack

reflect on the experience over the course of the unit, looking back on the unit Guiding Question, and considering the steps of the PBL Process they have followed along the way. Students close the unit with a final reflection on their goals as related to the Desired Student Outcomes.



Advance Preparation Notes

While this unit introduces important ideas and skills, it exists in part to help mitigate any potential hunger or food insecurity issues faced by students in your classroom. By creating a classroom snack that will be readily available for everyone, you can support hungry students without calling attention to their specific situation. In general, it will be a good idea for you to discuss with your school guidance counselor or other student support professionals how you might be able to guide comfortable, inclusive conversations about difficult issues such as hunger. Additionally, it is important that this unit is done early in the course, to normalize eating in the classroom right away.

In Lesson 9, the class will conduct simple research to find potential recipes for the classroom snack. Pull together a small collection of accessible cooking websites, cooking blogs, and/or cookbooks (if possible geared toward children and including snack options) to facilitate this brief research period. One website we recommend is: America's Test Kitchen Kids Young Chefs' Club: <https://www.americastestkitchen.com/kids/home>.



Safety Note

There will be times in this course when we suggest having students work with food or taste food. It is imperative that you know of any pre-identified food allergies and special diets in your classroom. It is also important that you connect with either your school nurse or other medical professionals in your district and your school administrators to understand any best practices or rules and regulations about food prep and consumption in your classroom.

Standards Addressed

This unit focuses primarily on standards from the *Massachusetts Curriculum Frameworks for English Language Arts and Literacy* and *Mathematics*.

Grade 4 ELA Standards for Reading Literature:

- 4.RL.1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.
- 4.RL.2. Determine a theme of a story, drama, or poem from details in the text; summarize a text.

Grade 4 ELA Standards for Reading Informational Texts:

- 4.RI.1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.
- 4.RI.2. Determine the main idea of a text and explain how it is supported by key details; summarize a text.
- 4.RI.5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

Grade 4 ELA Standards for Speaking and Listening:

- 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.
- 4.SL.2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Grade 4 ELA Standards for Writing:

- 4.W.1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- 4.W.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

Grade 4 Math Standards for Operations and Algebraic Thinking:

- 4.OA.A.1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
- 4.OA.A.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison

For a complete list of standards addressed in this unit, visit <https://i2learning.org/curriculum/full-year> and select the Unit's standards links

Standards Assessed

Standard(s)	Student Competencies
<i>Massachusetts Curriculum Framework for English Language Arts and Literacy</i> 4.W.1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information. 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i>, building on others' ideas and expressing their own clearly.	1. I can write a piece that clearly states my opinion on our classroom snack. 2. I can support my opinion with reasons and information about the class' needs and preferences. 3. I can produce a persuasive writing piece with the goal of convincing classmates to consider my snack option. 4. I can engage in collaborative discussion with my classmates to narrow down our choices and come to consensus.

DSO Focus

- Perseverant
- Kind & Compassionate Community Member

Unit Resource Links

- Module Materials Checklist
- Unit Student Pages
 - Student Pages, Our Classroom Snack:
<https://docs.google.com/document/d/1SSH8eNmuDXke0-F3jveNPus33WXTj7kui5K1TJh9U-E/edit?usp=sharing>
 - Unit Resources, Our Classroom Snack:
https://docs.google.com/document/d/1xEo39wy7UIkIDi4NBPhhZbMLT7s5Gqlv-3_f3BjFKoY/edit?usp=sharing
- i2 Online Resources
- Classroom Requirements
 - Because you'll eventually be working with food in this unit, it is helpful to have a clear understanding about the rules, regulations, and affordances related to food in your classroom. What are school or district rules and regulations about what food you can have in your classroom? What appliances (fridge, microwave, toaster) can you have, or are you comfortable having in your room? Are there other areas of the school (a communal kitchen) that you can take advantage of? Limitations are expected and understandable, but the more options you can give, the more creative your students can get with the classroom snack project.
 - Students will discuss food needs (including allergies and special diets) as a part of this unit so that they can take into account the needs of other students when they choose and prepare a classroom snack. It is critical that you have gathered all information about students' food allergies and needs prior to starting this unit.

Lessons

Lesson 1: Introduction to a classroom snack | 75-90 Minutes

The class is introduced to the unit project of making a classroom snack as well as the Guiding Question: *How can we work together to create a classroom snack that everyone enjoys?* Students share initial ideas for how to approach this unit project, revisiting the PBL Process and beginning to create a toolkit to keep track of strategies and tools to support their project work.

Preparation Notes

1. Make sure the “Food Questions” chart is available for reference. Gather any other notes or artifacts from the Food and Me Lesson 2 discussion, *A whole year on food?!* that you think could be helpful.
2. Review the Project-Based Learning (PBL) Process Chart that was introduced in The Introduction to i2 Full Year at the start of the course. You will revisit it with students as they make suggestions about how to manage the process of completing the unit project. Review the example PBL Process Padlet as a potential way to track student responses throughout the course.



Note

Throughout Module 1, you will find cues to stop and prompt students to reflect on where they might be in the PBL Process, as well as the types of questions they might be asking, and the strategies and tools they might be applying. The PBL Process example created in Padlet and provided in this lesson suggests one way you might work collaboratively with students to maintain your own “PBL Toolkit.”

The PBL Toolkit is a collection of strategies and tools you and your students identify as supports for project-based experiences and relevant skill-building including, project management skills, collaboration, and student independence. Ideally, students should begin to feel more and more comfortable with project work, the associated resources, and strategies they’re developing. Maintaining somewhat regular reflections and adding to the PBL Toolkit can help increase comfort in this area. And having an understanding of the tools and strategies that comprise such a Toolkit may help students later in the course when they are managing their own Capstone projects in Module 4.

3. Determine your preferred method for tracking strategies and tools in a “PBL toolkit” as described in the note above and create a framework for the toolkit. You could:
 - Use chart paper and sticky notes with markers
 - Add writable flags to a printed version of the PBL Process Chart
 - Create a collaborative digital toolkit similar to the example PBL Process Padlet
 - Or use a different digital collaboration tool your school is already familiar with, such as Google Jamboard or Milanote.

You will begin using this tracking method with students at the end of this lesson, so consider how you will have students contribute their ideas and plan accordingly. For example, if you are using a digital method like Padlet, you may want students to help you add to the Padlet directly and will need to have devices for student use.

4. Note that if you have other PBL processes that you’ve used or prefer, you may choose to use to alter these steps and adjust the unit a bit. Students may also make suggestions about steps or specific words used to describe steps, and that’s great! The steps that define the PBL Process reviewed in this unit are:

- Define the problem
- Plan the approach
- Seek knowledge
- Adapt the approach
- Develop the solution
- Reflect on the experience
- Present the work

All of these steps are intended to be flexible, may be completed in a different order, and may be cycled through multiple times.

Resource Links

- [PBL Process Chart](#)
- Access to Padlet collaborative tool: <https://padlet.com/> (or another method for creating a PBL toolkit with the class as noted above)
- [Example PBL Toolkit Padlet](#), for teacher reference

Objectives

- Students will be introduced to the rationale for establishing a classroom snack
- Students will begin to make plans for how they might approach the creation of a classroom snack

Standards Focus

- Grade 4 ELA Standards for Speaking and Listening:

- 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

Vocabulary

- **Project-based learning**, n. (review) A type of learning where students gain knowledge and skills by working on a long-term, meaningful project
- **Process** n., (review) A series of steps or instructions often in a particular order, to meet an end goal

Materials

For the whole class	For each group of 2-3
● Chart paper ● Markers ● “Food Questions” list from Food and Me ● PBL Process Chart ● Example PBL Toolkit Padlet, for teacher reference ● Access to Padlet, chart paper and sticky notes, or other tools for creating a PBL toolkit (see Prep Notes) ● Internet-connected device and projector or Smart Board (if you plan to use a digital method for tracking PBL strategies and tools, see Prep Notes)	● Scratch paper (optional) ● Pen or pencil (optional) ● Additional materials for contributing ideas to the class PBL toolkit (see Prep Notes)

Activity | Define & Plan

Introduce the classroom snack idea (20-25 minutes)

✓ Formative Assessment

In this unit (and throughout many units in this course), students develop their ideas through collaborative discussions on a wide range of topics (4.SL.1.). During this lesson, students are introduced to the Guiding Question and related unit project: to create a classroom snack that everyone can enjoy. Through discussion in small groups, students ideate on how to approach this project. Then, they share their ideas as a whole group, working collaboratively to develop a project approach and relating this approach to the steps of the PBL Process. Consider keeping track of which ideas

are coming from which student groups to help you get a sense for how students are handling collaborative small group discussions.

1. Gather the class in the meeting area. Remind students that in the last unit, you spent time thinking about food (likes, dislikes, needs, personal and cultural connections related to food). Call students' attention to the "Food Questions" list and remind students that they will be working throughout the year to answer many of these questions.
2. Share with students that you are excited you'll be talking about food almost every day! But, you have a problem and you're hoping they might be able to help you come up with a way to solve it.
3. Tell students that during the last unit when you were thinking a lot about food, you often found yourself feeling a little bit hungry. Prompt students to consider whether this ever happens to them--they think about food and realize they are hungry. Explain to students that you're worried you'll find yourself feeling hungry a lot this year if you're talking about food all the time.

Discuss in pairs

💬 **How might we address this issue? What ideas do you have?** We could try to only talk about food after lunch when everyone has eaten; We could bring in snacks from home and eat them before we start talking about food; We could have a snack available in the classroom for whenever anyone is hungry; etc.

4. Highlight any responses that mention having food in the classroom for anyone who is hungry. If no students mention this option, bring it up as an option yourself.
5. Post the unit Guiding Question for students and let them know this is the question you'll be working together to answer: *How can we work together to create a classroom snack that everyone enjoys?*

Discuss in pairs

💬 **How can we work together to create a snack for our classroom that everyone enjoys?**

You might post some additional questions on the board, such as:

- What steps should we take?
 - What will we need to know?
 - What teamwork skills will we need?
 - What questions do we have?
6. Give student pairs a few moments to talk together. If you like, distribute scratch paper if students want to take informal notes on their ideas.

7. Then, have pairs get together with another set of peers to share ideas across a larger group. Encourage students to note any ideas they have in common (e.g., perhaps many groups thought the class would need to start by brainstorming, etc.).
8. Call the attention of the group. On a sheet of chart paper, collect and record all initial student ideas and questions.
9. Note that some pairs will likely already have an idea for what the snack should be (it should be popcorn, etc.). Let them know you'll have a chance to talk more about that later, but now you'd like them to focus primarily on the *process* for creating the classroom snack, not the snack itself.
10. Help students to recognize that while they can focus on nearly any Desired Student Outcome they choose, this unit will have a particular emphasis on the DSOs Perseverant (solving problems and cooking for a large group takes perseverance) and Kind & Compassionate Community Member (since their goal is to make a snack that everyone in the class can enjoy safely).

**General Assessment Note**

Consider introducing students to the rubric included in the student pages: Persuasive Writing Piece and Discussion.

Build consensus on a project approach (~30 minutes)

11. Work with the class to begin to develop a project approach. You might create a large visual on the board by listing the Guiding Question on the left side and “our classroom snack” on the right side and creating a sort of timeline. As students suggest tasks or steps and where they might go in order, you can record them into the timeline. If students bring up skills they might need to use, you might post them above or below the timeline, etc.
12. Some important steps or ideas you will want to be sure students consider include:
 - What students in the class like to eat and can eat (setting you up to talk about preferences, allergies, and special diets in the next lesson)
 - What is reasonable and realistic (It would be tough to have a fancy souffle that takes hours to make be the classroom snack! Cost might also be a factor)
 - The tools it will take to make the snack (to literally create it and to prepare it in the moment—would it need to be heated, etc.)
13. Once you've got a general project plan pulled together, let students know you'll begin working on the actual steps they identified in the next lesson.
14. Be sure to take a photo or otherwise save the project approach the class came up with.

Revisit the PBL Process Chart and begin tracking strategies and tools related to the PBL Process steps (15-20 minutes)

15. Remind the class that, this year, they will be doing lots of projects. In fact, they've already started by building their solar ovens in the last unit and now they are thinking about making this classroom snack. It may not seem like a project, but it is! Reiterate that this is actually a particular approach to learning that's called **project-based learning**.
16. Reinforce the concept of project-based learning: a type of learning where students gain knowledge and skills by working on a long-term, meaningful project. A project might involve answering a complex question or designing something to solve a real problem. Often in regular school years, projects happen at the end of a learning experience as a way to summarize what was learned. In project based learning, the project *is* the learning.



Reflect on the PBL Process Chart

Take a moment to reintroduce the PBL Process Chart. Ask students:

Where do you think we are in this process right now? Define the problem; I think we already started to Plan the approach; etc.

What makes you think so? We talked about your problem of feeling hungry while talking about food; You are worried that you'll always feel hungry while talking about food for a whole school year; Some of us were feeling hungry talking about food and that makes it hard to concentrate; We are already putting together a plan by brainstorming and coming up with steps; We made a timeline and figured out some things we need to do to make a snack; etc.

17. Turn students' attention to the first step in the PBL Process, "Define the problem."
18. Check in with students about how they are feeling about this first step. If students are unsure if they have "defined the problem", prompt student volunteers to try to explain what the problem is, why it matters, and to whom.
19. Once students are confident that they have defined the problem, turn their attention to the framework you created to be the PBL toolkit (e.g., chart, class Padlet or other digital version if you decided to go this route). Explain that this will become a sort of "toolkit" where the whole class will collaboratively keep track of the strategies, skills, and tools they've used to manage the different steps of the PBL Process.
20. Using a hand-written or digital approach, encourage students to jot down a few ideas under "Define the problem," using the following prompts to guide them:
 - What questions did you ask?
 - What questions did you answer?
 - What strategies or tools did we use to help us with this step?

If students need support, consider sharing a few of the sample student responses from the Example PBL Process Padlet.

Look ahead to the next steps of the PBL Process (10–15 minutes)

21. Turn students' attention to the next step, "Plan the approach." Invite students to share what they think the class has already done in this regard and what still needs to be done. Add notes to your toolkit as needed.
22. Encourage the group to consider the class' project approach and look forward to the next steps of the PBL Process. Invite students to turn and talk about what the class might need to do next. Accept all student ideas for now.
23. Share with students that while today they thought specifically about a problem they need to solve and an approach for the classroom snack project, this toolkit they are creating may help them with lots of other projects later in the year. For this reason, adding strategies and tools to the toolkit will become a regular practice for the group.



Note

It's likely students recognized that figuring out specific information on preferences, allergies, etc., is important and should happen fairly early on in your process. If your students identified something they thought was important to do before this step (which is outlined in the next lesson), feel free to take a detour and create your own lesson, or move around the order of lessons in this unit if it feels appropriate.

Lesson 2: Food allergies, special diets, and preferences | 50-60 Minutes



Safety Note

There will be times in this course when we suggest having students work with food or taste food. It is imperative that you know of any pre-identified food allergies and special diets in your classroom. It is also important that you connect with either your school nurse or other medical professionals in your district and your school administrators to understand any best practices or rules and regulations about food prep and consumption in your classroom.

Students begin to gather information as they continue their work on the classroom snack project. They begin to consider the dietary needs of others in the classroom, including allergies, special diets, and preferences. They continue to reflect on the PBL Process and track their ideas for strategies and tools that will support their ongoing project work.

Preparation Notes

1. If you have students with food allergies or special diets, let families and students know in advance that you will be discussing these topics as a class. Ask them whether they are willing to share about their dietary needs, and give them any support they need to do so.
2. Review student records to make sure you are aware of all food allergies or special diets in the classroom.
3. Create a class chart with three columns titled “Food Allergies,” “Special Diets,” and “Food Preferences.” Be prepared to fill out the “Food Allergies” and “Special Diets” column with all of the allergies within the class (including yours)—no names are required unless students want to discuss their personal allergies or needs. Remember there are lots of reasons for special diets (which can include nutrition-related reasons and belief-related reasons).
4. Have your reference for the class’ project plan approach handy and be prepared to share it with students to review any thinking they’ve already done about allergies and special diets.
5. Preview the video *Kids Talk: Food Allergy* and prepare to show the first 3 minutes to the class.
6. Ensure that you and students will have access to the class PBL toolkit.

Resource Links

- Video: *Kids Talk: Food Allergy*, CFAAR: <https://www.youtube.com/watch?v=HjU5d1gE3E8> You will explore the first three minutes of this video with students.
- [PBL Process Chart](#)

Objectives

- Students will be able to distinguish between food allergies, special diets, and food preferences.
- Students will take responsibility for maintaining an allergen-aware classroom.

Standards Focus

- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.
- Grade 4 ELA Standards for Reading Literature:
 - 4.RL.1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.

Vocabulary

- **Allergy**, n. The response a body (the immune system) has to a substance it is sensitive to.
- **Epinephrine**, n. A medication used to treat severe allergic reactions.

Materials

For the whole class	For each student
• Chart paper • Markers • Project plan approach (image or other artifact reserved from Lesson 1) • Copy of <i>Stef Soto, Taco Queen</i> • Internet-connected device and projector or Smart Board • Access to video: Kids Talk: Food Allergy (in Resource Links) • PBL Process Chart • Access to class PBL toolkit (started in Lesson 1)	• Copy of <i>Stef Soto, Taco Queen</i> (as needed) • Scratch paper • Pen or pencil

Activity Steps | Seek

Introduce food allergies (25-30 minutes)

✓ Formative Assessment

Student contributions to the “Food Allergies, Special Diets, and Food Preferences” chart may help to indicate the extent to which they are comfortable engaging in conversations with diverse partners and building on others' ideas (4.SL.1.).

1. Call the class' attention to the project approach artifact you developed in the previous lesson. Point out any notes related to food **allergies**, special diets, and food preferences.

💬 **What experiences have you had with food allergies and special diets?**

2. Give students a few moments to consider this question before inviting a few student volunteers to share their experiences. Be sure to let the group know that anyone who doesn't wish to share personal experiences related to this question, doesn't have to.
3. If no one mentions, the character of Arthur from the Module text, *Stef Soto, Taco Queen*, recall him for the group. Suggest that, if they need to, students get their copies of the book and turn to the start of Chapter 2 (around pages 7-8).

💬 **In what ways is Arthur's diet special?** Stef says Arthur is allergic to everything; He needs food that is wheat-free, dairy-free, egg-free, nut-free, meat-free; He is a vegetarian for environmental reasons; etc.

💬 **How does Stef's Papi make sure Arthur can be served at their taco truck?** He makes food that Arthur can eat by changing some of the ingredients; He tries out different dishes keeping Arthur's diet in mind; He tests recipes with Arthur; They keep track of the dishes that Arthur can eat on a special menu; etc.

4. Relate initial student understandings about allergies and special diets to their task of developing a classroom snack.

💬 **Why do we need to know about food allergies and special diets?** Because our goal is to come up with a class snack that everyone can eat whenever they are hungry; Because allergies to food can cause people to get sick; Allergic reactions to food can be very serious and we want everyone in the class to be safe; etc.

💬 **Why do we need to know which foods people enjoy?** Because if we don't make a snack that everyone enjoys, some kids might not eat it and it might be harder for them to concentrate when we're learning about food; etc.

5. Ensure that students have an understanding of the definition for **allergy** (the immune response a body has to a substance it is sensitive to). Guide students to recognize that it is important to know about the class' food allergies, special diets, and food preferences in order to make a snack that is safe and enjoyable for everyone.
6. Play the first three minutes of *Kids Talk: Food Allergy* and have students listen for anything they didn't know about food allergies.
7. After playing the video, prompt students to turn and talk with a partner to share something they learned from the video. Then invite a few student volunteers to share with the full class. Some important points to cover are:
 - There are many foods that people can be allergic to, and some people are allergic to multiple foods.
 - Food allergies often have severe reactions requiring hospitalization and/or immediate treatment with medication, such as **epinephrine**.
 - Cross-contact means that people can have an allergic reaction if the food they're allergic to touches their food (or touches something that touched their food)
8. Have students think about the role of the community in the video.

💬 **Who is responsible for the safety of people with food allergies?** Students who have allergies need to take care of themselves; We can help with this responsibility by being aware of who has food allergies and to what foods; Teachers/other adults are responsible for knowing which students have allergies and keeping them safe; etc.

9. Guide students to recognize that, while students with allergies know the most about how to keep themselves safe, it is the responsibility of the entire community to make sure people with allergies are safe by keeping surfaces clean and avoiding bringing in dangerous foods.
10. Invite any student who has a food allergy they are comfortable sharing to talk about what they are allergic to and what they do to keep themselves safe. If students have follow-up questions, guide them to ask questions based in curiosity rather than judgment (see Unit 1: Food and Me, Lesson 4).
11. Invite any students on special diets who are comfortable sharing to explain their dietary needs to the group. Encourage these students to share the reasons for their dietary needs if they would like.

12. Share the “Food Allergies, Special Diets, and Food Preferences” chart with the class. Begin to fill it out so it reflects the food allergies and special diets that exist within their classroom community.
13. Point out the “Food Preferences” column. Encourage the group to think back to some of their experiences thinking about favorite foods during the Food and Me unit.

 **How is a food allergy different from not liking a certain food?** Food preferences are important because they are part of who we are, but eating a food we don’t like is not dangerous; etc.

14. Help students understand that food allergies cause dangerous physical reactions, while eating a food you don’t like does not.

Have students identify their favorite snack foods (~15 minutes)

15. Have students work in pairs or small groups to brainstorm a list of snack foods they enjoy. These can be descriptive words such as “sweet and crunchy” or actual food items such as “cookies.”
16. Distribute scratch paper so groups can keep track of their ideas.
17. As each group finishes their list, invite them to add their ideas to the “Food Preferences” column on the class chart.

Reflect and track strategies and tools related to the PBL Process steps (10-15 minutes)

18. Gather students around the “Food Allergies, Special Diets, and Food Preferences” chart.

 **Do you think it will be easy or difficult to make a classroom snack? Why?** I think it will be difficult because some members of the class might have conflicting food preferences; An allergy might rule out a lot of different snacks; We all have different opinions so I don’t think this is going to be easy; I think it will be easy because I like everything on this list already; etc.

19. Reinforce that since this is a classroom snack, it has to be safe and enjoyable for everyone. Even though it may be difficult, by the time they are done, they will be eating a delicious snack together!



Reflect on the PBL Process Chart

Where do you think we are in this process right now? I think we are starting to Seek

knowledge; etc.

What makes you think so? We are collecting information about the allergies and special diets in our classroom so we can keep them in mind when deciding on a snack; We watched a video to help us know what food allergies are and how people deal with them; etc.

What strategies or tools have we used to help us with this step? We watched a YouTube video; We talked with people who actually have allergies and special diets; We made a list of the allergies, special diets, and preferences in our group so we wouldn't forget them; etc.

20. Encourage the group to help you add any new ideas for strategies and tools to the PBL toolkit. Remind the group that the "Seek knowledge" step is often stretched out over time, so they may still have more to do during this step of the PBL process.



Note

Because reflecting on the PBL Process will become a regular practice in the classroom, consider recording the guiding prompts for this practice somewhere accessible to all students. Eventually, students may be able to self-manage this practice with just a simple cue from you. Those guiding prompts are:

- **Where do you think we are in this process right now?/Which steps of this process have we completed recently?**
- **What makes you think so?**
 - What questions did you ask? (additional probing question)
 - What questions did you answer? (additional probing question)
- **What strategies or tools have we used to help us with this step?**

Lesson 3: Ew and yuck and gross | 70-90

Minutes (+10 minutes to Capture)

The class reads *The Sandwich Swap* by Queen Rania Al-Abdullah and Kelly DiPucchio. Through this story, students consider how people react to foods that are unfamiliar. Students reflect on how to make sure that everyone's foods and cultures are treated respectfully and fairly in the classroom.

★ Differentiation Note

The Sandwich Swap is a picture book that you will refer back to several times in this unit. You can choose to introduce this book in a variety of ways. Reading the book aloud and/or potentially playing a video or audio recording of the book can help students who need additional support with comprehension or general reading skills. However, you should also feel free to provide copies of the book so students can read the text independently or in small groups. Consider how you will use this book with your students potentially engaging them in a variety of ways, if appropriate. The discussion questions for this text are provided within the Activity section as well as in the student pages so students can work with them independently or in small groups as you see fit.

Preparation Notes

1. Read through *The Sandwich Swap* on your own if you are not familiar with it.
2. Preview the *Lunch Box Moment* video clip and prepare to show it to the class.
3. Ensure all students have access to the necessary student pages for this lesson: *Lesson 3: The Sandwich Swap, Part 1* and *Part 2*.
4. Hang the "Food Allergies, Special Diets, and Food Preferences" chart from Lesson 2 somewhere accessible to all students.

Note

A variety of foods are described as important to the characters in this story, including peanut butter and jelly and hummus and pita. Depending on the nature of food allergies in the class, you could decide to bring in samples of peanut butter and/or jelly (if your school doesn't allow peanut butter) and hummus and pita for the class to try. You could engage as a class to describe the tastes and textures of each and even consider adding these as possibilities for the classroom snack.

Resource Links

- Video: *Lunch Box Moment*, NBC News:
<https://www.nbcnews.com/video/voices-lunch-box-moment-677883971990>
- [Student Pages](#): Lesson 3: *The Sandwich Swap*, Part 1 and Part 2

Objectives

- Students will identify the primary message and summarize key points of a story.
- Students will draw examples from the text to discuss how people sometimes react to unfamiliar foods.

Standards Focus

- Grade 4 ELA Standards for Reading Literature:
 - 4.RL.1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.
 - 4.RL.2. Determine a theme of a story, drama, or poem from details in the text; summarize the text.
- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.
 - 4.SL.2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Vocabulary

- **Ashamed**, adj. A feeling of guilt or embarrassment, related to shame
- **Hummus**, n. A food made from chickpeas pureed and blended with oil and spices
- **Jelly**, n. A sweet, thick spread made from boiled fruit and sugar
- **Peanut butter**, n. A paste of ground, roasted peanuts
- **Pita**, n. A type of bread that is often a round, flat shape that can be opened to make a pocket
- **Theme**, n. (literature) A universal idea, lesson, or message explored throughout a work of literature

Materials

For the whole class	For each student
• "Food Allergies, Special Diets, and Food Preferences" chart from Lesson 2 • Copy of <i>The Sandwich Swap</i> by Queen Rania Al Abdullah and Kelly DiPucchio	• Copy of <i>The Sandwich Swap</i> (if appropriate for your class, see Differentiation Note below) • Student Pages: Lesson 3: <i>The Sandwich</i>

- Internet-connected device and projector or Smart Board
- Access to video: [Lunch Box Moment](#) (in Resource Links)

- *Swap, Part 1 and Part 2*
- Journal
- Pen or pencil
- Internet-connected device

Activity Steps | Seek

Introduction to ew, yuck, and gross (5-10 minutes)

✓ Formative Assessment

Observe students during small and whole group discussions about the text, *The Sandwich Swap* and the video, *Lunch Box Moment* to get a sense for how they engage in collaborative discussions about challenging social topics (4.SL.1).

1. Remind students that in this unit, they will be deciding on a classroom snack that everyone can enjoy. Point them back to the "Food Allergies, Special Diets, and Food Preferences" chart from Lesson 2, paying special attention to the "Food Preferences" column.

💬 **How do you think you would feel if someone had a very negative reaction to a snack you suggested?** It might make me feel sad, angry, or upset; I might get defensive and say something negative back; I might not want to be involved in the classroom snack project; I wouldn't care because that would be their opinion, etc.

2. Remind the group about how they considered the difference between asking questions out of curiosity, rather than judgment when discussing favorite foods during the Food and Me unit. Explain to students that in this activity they will continue to think as a class on curiosity vs. judgement related to food.
3. Explain that students are going to read a book that describes some foods as "gross."

💬 **What do you think the word "gross" means?** Yucky, ew, nasty, sick, disgusting, etc.

💬 **What is a food that you think is gross? Why do you think that?** I think _____ is gross because I don't like the texture; I think _____ tastes gross; etc.

💬 **Do you think it's possible there are foods that I like to eat that you might think are gross? Why?** Yes, because everyone has different tastes; Yes, because everyone eats different foods as part of their family traditions or cultural foodways; etc.

4. Explain to the class that they are going to read a story about two friends who have different food preferences.

Read *The Sandwich Swap* (20-25 minutes)

5. Arrange the class for literature reading according to the needs of your group. This book should be accessible enough for many students to read independently, but you may choose to have students engage in small groups or even conduct a read aloud with specific students who would benefit from additional guidance.
6. Ask students to open their student pages to *Lesson 3: The Sandwich Swap, Part 1*. This page provides students with a series of discussion questions to help them engage with the text.
7. If reading the book aloud with the class or a small group, hold a discussion using the questions below as a guide. If you go this route, you could choose one or more of the questions to serve as an independent writing prompt.

Discuss/Check for Understanding

- ☞ Have you ever tried **peanut butter, jelly, pita, or hummus**? What are these foods made of? How would you describe them?
- ☞ What is the main conflict in this story?
- ☞ Both girls think about their parents carefully making their sandwich before school. How might you feel if someone insulted a food you associate with your family?
- ☞ How do these insults about food change as the story progresses?
- ☞ After the food fight, the author introduces the word, “**ashamed**.” What do you think this word means? Why do you think Salma and Lily feel this way?
- ☞ At the end of the story, the characters have a picnic lunch and bring some different foods from their homes. Where do you think these foods came from? Why might they be important to the characters in the story?

Summarize the story and identify it’s main theme (25-30 minutes)

8. Once all students have finished reading and responding to the story, if they were working independently, encourage them to get into small groups to talk about the story. Give students a few moments to share their thoughts from their student pages.
9. Then, encourage them to turn to *The Sandwich Swap, Part 2*. Challenge students to work in their group to write a summary of the book using no more than three sentences. In addition, ask them to think about and discuss what they believe the **theme** (universal idea, main “lesson,” or primary message) of the book is. Encourage students to record their summaries and thoughts about the story’s theme in their student pages.
10. After some work time, invite groups to share their summaries and takeaways about the theme. Record all of the different theme descriptions on the board.

11. Explain to students that some of the themes of the book may be important for them to consider, as they will also be learning about and discussing new foods and food preferences with their peers over the course of the year.

 **Which themes do you think will be important to us this year? Why?** I think the theme of showing respect for other people's food preferences will be important because we will be learning about lots of different foods and cultural foodways this year; I think the theme of being brave and trying new things is important, because we are going to be learning in lots of new ways this year; etc.

 **Why do you think it is important that we not use terms like gross to describe other people's food?** It can hurt people's feelings; It is insensitive and can make people feel unwelcome in the classroom; I wouldn't like it if someone said my snack was gross, so I'm not going to use words like that to describe someone else's preferred food; We are trying to practice being kind and compassionate community members, so we need to think carefully about the words we use; etc.

 **Do you think it is important to consider trying food you haven't had before? Why?** Yes, because it shows respect for other people's preferences and cultural foodways; Yes, because you might find out that you like to eat it, too!; Maybe, but if you decide you don't want to try it that's okay--you can say no thank you, politely; etc.

Make real-world connections to The Sandwich Swap (10-15 minutes)



Note

Because this section of the lesson utilizes a video that deals with some challenging social issues, it has been designed as a whole group guided discussion. However, if your students are ready, you could also have them engage with the video in small groups, providing the discussion questions below as a guide.

12. Help students connect the themes of this book to real life experiences by showing them the *Lunch Box Moment* video from NBC News. Ask students to listen for connections with the themes they described from *The Sandwich Swap*.

 **Do you think the people in the video felt ashamed of their lunches? Why?** Yes, because they all shared stories of how their classmates made fun of their lunches or didn't understand that it was food; Other people said "ew" and called their lunch "dogfood"; People shared that they didn't want to bring food from home anymore, or they would lie about their food; etc.

💬 **How does this video remind you of the story we just read?** All of these stories took place at school between kids; Kids were saying mean things about each other's lunches; etc.

13. Next, guide students to think about this issue through the lens of fairness and power.

Discuss with a partner

💬 **Do you think it's fair for Asian Americans, or anyone, to feel ashamed of their lunches or snacks? Why or why not?** No, because there is no reason to be ashamed of food just because it is different from what others around you are eating; etc.

💬 **In the stories they told in the video, who had the power to make the situation more fair? How?** The people who were saying the judgmental things could have been more respectful of their classmates' lunches; The adults could have stepped in; etc.

Individual reflection time and Capture (~20 minutes)

14. To close the lesson, give students about 10 minutes to reflect in their journals on one or more of the following prompts:
- Think about the food preferences you shared in the last lesson. How do you think you would feel if someone thought your snack was "gross?"
 - What will you do the next time you see someone at school with a lunch that looks "gross" to you? Why?
15. Encourage students to keep in mind some of the themes of this book and the video clip as they continue talking with each other about their food preferences and plans for the classroom snack.



PAUSE TO QUICK CAPTURE

Lesson 4: Food opinions | 65-80 Minutes

Students consider how their own experiences with and preferences for food impact their ideas about foods that other people eat. Students revisit *The Sandwich Swap* to recognize that certain foods in the story were associated with certain regions of the world. They then explore an interactive online food map to notice and wonder about the wide world of food, and to pay attention to their own biases and opinions about foods that they are unfamiliar with.

Preparation Notes

1. Preview the video, *School Lunches Around the World* and the *World Food Atlas* and determine how students will access these resources (individually or in pairs) or whether you will explore them as a whole class. Ensure you have enough internet-connected devices ready to accommodate your plans.
2. Ensure all students have access to the necessary student pages for this lesson: *Lesson 4: Food Opinions*.

Resource Links

- Video: *School Lunches Around the World*, Food Around the World: https://www.youtube.com/watch?v=lc_Z3P_7oEc
- Tool: *World Food Atlas*: <https://www.tasteatlas.com/search>
- [Student Pages](#): *Lesson 4: Food Opinions*



Safety Note

In this lesson, students analyze and reference video resources from online sources like YouTube. Videos presented online often include advertisements that pop-up and even interrupt the video playback. As necessary, remind students that they should never click on any ads that pop-up as they are watching a video online. However, they can skip the ads if the video player gives them the option to do so.

Objectives

- Students will identify personal biases for and against certain foods
- Students will transform a judgment about an unfamiliar food into an expression of curiosity

Standards Focus

- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

- Grade 4 ELA Standards for Writing:
 - 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Vocabulary

- **Bias**, n. A tendency to lean in a certain direction, either for or against a particular thing

Materials

For the whole class	For each student
• Copy of <i>The Sandwich Swap</i> by Queen Rania Al Abdullah and Kelly DiPucchio • Internet-connected device and projector or Smart Board • Access to video: School Lunches Around the World • Access to the World Food Atlas • World map • Flag pins and sticky notes, writable page flags, or other tools for marking the map	• Student Pages: <i>Lesson 4: Food Opinions</i> • Internet-connected device • Pen or pencil • Copy of <i>The Sandwich Swap</i> (optional)

Activity Steps | Seek

Help students uncover their opinions about other people's food (10–15 minutes)

✓ Formative Assessment

Responses in the student pages, *Lesson 4: Food Opinions*, demonstrate students' ability to analyze their own responses to stimuli for biases and to organize their personal analysis in writing (4.W.4.).

1. Remind students that, last time, they read *The Sandwich Swap* in which two friends had strong opinions about what the other ate for lunch. Also remind students that, as a class, they're going to be sharing and learning more about their peers' food preferences as they prepare to create a classroom snack that everyone can enjoy.
2. Let students know that, today, they will consider their own opinions about foods that other people eat.

3. Introduce the video, *School Lunches Around the World* by playing a quick clip of the video for the whole group. Explain that students will watch this whole video (individually or in pairs) and observe their own reactions to each lunch presented.
4. Ask students to open their student pages to *Lesson 4: Food Opinions*. Distribute devices to students and encourage them to each record their individual reactions in the Section 1 of the page (regardless of whether they are working with a partner).
5. Give students an appropriate amount of time to complete this task. Then, call the attention of the group. Encourage students to turn to a partner to share their opinions using the prompts below as a guide.

💬 **What did you notice about your food opinions?**

💬 **Why do you think you hold these opinions?**

💬 **Do you think you're more likely to want to eat something that you've had before, or that looks familiar? Why or why not?**

6. Invite a few student volunteers to share their responses.
7. Introduce the term **bias**. Explain that bias is a tendency to lean in a certain direction, either for or against a particular thing. Consider giving some personal examples of bias, such as:
 - I am biased towards [a particular sports team] because they play in the town where I grew up.
 - I am biased against [a certain type of pet] because I am allergic to their fur.
8. Have students turn back to their partner to share a few examples of food biases they might have for and against certain foods, based on their reactions to the school lunches video.
9. Explain that, today, students will continue to explore foods from different cultures and nations to learn more about their own opinions and biases about foods.

Introduce a world map and begin making connections between food and locations (~10 minutes)

10. Display a world map and invite students to notice and wonder.

💬 **What do you notice about this map?** I notice it is shaped like a rectangle; I notice there are labels for places; I notice land is one color and water is another color; I notice that Greenland looks gigantic; etc.

💬 **What do you wonder about this map?** I wonder whether it is accurate; I wonder how people made it; I wonder if people in other places use the same map; I wonder where [a particular location] is; etc.

11. As a class, determine a few locations to plot to help bring some perspective to the map. Consider places such as:

- the location of your school
 - a landmark that students are familiar with
 - a location from a recent movie or show that students are familiar with
12. Mark these locations with flag pins and sticky notes or page flags and label them appropriately. These markers will help provide some context to students when they look at the map.
 13. Revisit *The Sandwich Swap* as a whole group or have students explore their own copies. Guide students to look at the flags that the characters Salma and Lily have put on their plates at the end of the story. (Lily has an American flag on her peanut butter sandwiches, Salma has a Jordanian flag on her hummus and pita). You may ask students if they see any other flags they can identify.
 14. Have students help you locate the USA and Jordan on the world map. Using flag pins and sticky notes or writable page flags as before, mark peanut butter and jelly and pin it on the USA. Using another pin, mark Jordan with hummus and pita.



Note

Students will use maps in many ways throughout the Food & Food Systems course. Use this initial experience with maps to get a sense for your class' general understanding of maps and how to use them. Can they find the United States on the map? Can they find their state? Do they know the names of continents? If you determine students would benefit from some more foundational work with maps, plan to build in these lessons before engaging in Unit 5: Maps and Food. While students will learn about scale, symbols, legends, and keys in that unit, they should have already had some experiences working with and reading maps.

Explore foods around the world and track students' food biases (20-25 minutes)

15. Explain to students that throughout the year, they will be learning about and discussing foods commonly eaten in many different places. Sometimes foods are eaten in different places because the ingredients are grown there so they are easily accessible. Sometimes foods are eaten in a particular place because people who have traditionally eaten that type of food moved there.
16. Introduce the *World Food Atlas*. Explain that it is constantly evolving based on user input, but that it seeks to represent different regions in the world along with the foods and drinks that are common there.
17. Model how to explore the *World Food Atlas*. Show students how they can explore any region in the world. By zooming in (or by clicking on the number associated with some food images), they can reveal even more food dishes. By clicking on a food dish, they can learn a little more about it.

18. Encourage students to either work independently or reconvene with their partners to explore the *World Food Atlas*. Prompt students to explore at least two foods that are unfamiliar to them, and at least two foods that are familiar to them. Ideally, if they see any foods or dishes that are part of a favorite meal or snack, they would explore them.
19. As they look through the Atlas, students should keep track of which foods they feel biased towards (I would eat this) and which they feel biased against (I would not eat this). They should record this in Section 2 of their *Food Opinions* student page.
20. At the end of the exploration period, call the attention of the group.

Practice transforming negative food biases into expressions of curiosity (20-25 minutes)

21. Encourage any students working individually to partner up with a peer. Ask them to take a few moments to discuss their exploration of the *World Food Atlas*.
22. Then, encourage students to reflect together and record their thoughts on the following prompts (also noted in Section 3 of the *Food Opinions* student page):
 - What patterns do you notice in the foods you are biased towards?
 - What patterns do you notice in the foods you are biased against?
 - What do these patterns teach you about yourself?
23. After students have a chance to reflect together, invite a few student volunteers to share what they learned with the class. Encourage students to make connections with each other and ask follow up questions.
24. Explain that, sometimes when confronted with things that are new or different, we reject or resist them because we feel more comfortable with what's familiar.
25. Encourage students to practice curiosity by each returning to Section 4 of their *Food Opinions* student page and using this experience to identify some unfamiliar foods that they are curious about. Prompt them write a statement or an "I wonder" question about some foods of their choice, expressing their curiosity.
26. Invite a few students to share how they transformed a bias against an unfamiliar food into a statement of curiosity about the food.

Relate the experience to creating a classroom snack (~5 minutes)

-  **What might this mean for us as we plan to create a classroom snack?** We might need to be brave and try something new; If we want to suggest a food that may be unfamiliar, maybe we should bring in a sample for our classmates to try; We should try not to judge a food we have never tried, because we might just be being biased against how it looks; etc.
27. Congratulate the group for attempting to think openly about unfamiliar foods. Explain to the group that this type of thinking about unfamiliar foods will help the

group as they continue to explore food throughout the course. It may also help them more easily decide on a classroom snack.

Lesson 5: My taste, your taste | 80-100

Minutes

Students further explore some of their food biases and preferences by engaging with taste samples to think about the roots of different flavors and how they taste to them. They also talk with peers about how they experience taste and recognize that people might experience different tastes differently.

Preparation Notes

1. Create a tray of taste samples for each group of 3-4 students. You'll need at least one example of each of the five tastes per tray: bitter, sour, sweet, salty, and umami (savory). Examples of each type of taste are listed below, with some notes. For each, we suggest using about $\frac{2}{3}$ parts of the "taste" and $\frac{1}{3}$ parts water in a small paper or plastic cup.
 - Bitter: unsweetened chocolate powder diluted in water, unsweetened/low-sugar cranberry juice, unsweetened/low-sugar grapefruit juice, turmeric diluted in water, green tea
 - Sweet: apple juice, sugar diluted in water, corn syrup
 - Sour: lemon juice, unsweetened/low-sugar orange juice, diluted vinegar
 - Salty: salt diluted in water, vegetable broth (NOT low sodium, of course), soy sauce diluted in water
 - Umami (savory): MSG diluted in water, Ramen flavor packet diluted in water, miso soup or broth, dried seaweed, soy sauce diluted in water, green tea
2. As you create the taste samples, try to anonymize the samples as best as possible so that students aren't influenced by knowing the identity of each product. However, samples should be labeled in some way (colors, numbers, letters) so that groups can each compare results with each other.
3. On a sheet of paper, create a "tongue map" of your own that you can share with students as an example.
 - Looking in a mirror, stick out your tongue.
 - Sketch an outline of your tongue in pen or pencil.
 - Observe the details of your tongue. Consider adding some details or recording some observations on your sketch.
 - During the lesson, you will model how to take a taste from one of the taste samples, then use colored pencils to indicate where on your tongue you tasted the flavor most prominently. See Activity, step #20 for details.

**Note**

There is a common misconception that there is one “tongue map”, and that there are distinct taste buds only on certain areas of the tongue. This is not quite true.

Everyone’s tongue is unique, and different taste receptors can be in different places across the tongue.

4. You may also want to read through some background reading on the history of the 5 tastes. See the link for additional background included in the Resource Links below. Consider sharing this with students who end up particularly interested in this topic. There are also some notes for additional background provided at the end of this lesson.

Resource Links

- Optional video: *Why This Taste Map is Wrong*, Wired: https://www.youtube.com/watch?v=0kIEcayEJ_o. Consider using some sections of this video to further support students’ understandings about their sense of taste and how the tongue actually works.
- For additional background - article and recording: *Sweet, Sour, Salty, Bitter ... and Umami*, NPR: <https://www.npr.org/templates/story/story.php?storyId=15819485>

Objectives

- Students will explore the five tastes (bitter, sour, sweet, umami, salty) and use them to create categories for sorting
- Students will understand that individuals’ tastes (literally and figuratively) can vary by talking with peers and creating a unique “tongue map”

Standards Focus

- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others’ ideas and expressing their own clearly.

Vocabulary

- **Taste**, n. The special sense that perceives the sweet, sour, bitter, salty, or umami quality of a substance, by the taste buds on the tongue
- **Flavor**, n. Taste, especially the distinctive taste of something as it is experienced in the mouth
- **Umami**, n. A category of taste in foods that corresponds to the flavor of glutamates (a type of amino acid), often described as “savory”

Materials

For the whole class	For each group of 3-4	For each student
• 2 cotton swabs (for teacher modeling with taste samples) • Paper • Internet-connected device and projector or Smart Board (optional) • Optional video: Why This Taste Map is Wrong (see Resource Links)	• 5 small cups • 1 tray • Handheld mirror • Samples of the five tastes (see Prep Notes)	• 10 cotton swabs, plus a few extra just in case • 2 sheets of paper • Pen or pencil • Colored pencils (at least 5 different colors, same set of colors per student works best) • Internet-connected device

Activity Steps | Seek

Introduce the sense of taste (5-10 min)

1. Gather students together and begin class with a discussion. Remind students they talked about food opinions in the last lesson, and began to identify certain biases towards or against foods. They noted that sometimes foods that are new or different might not be appealing to them at first.
2. Explain to students that today they're going to explore the sense of **taste**. Ensure that the group has a common understanding of the definition for taste, the special sense that perceives the **flavor** of a substance, by the taste buds on the tongue.
3. The fact is, a certain food might not be appealing to an individual because it doesn't "taste good" to them!

💬 **By show of hands, how many of you think [potato chips, broccoli, chocolate, etc., just vote on a few different options] taste good?**

💬 **When picking a snack, who prefers sweet? Who prefers salty? Why do you think that is?** I'm not sure; It just tastes good to me; I've always eaten it; etc.

4. Acknowledge that everyone has unique opinions and preferences regarding taste. Let students know they'll be able to work in small groups to learn more about how they taste different flavors and how others taste those same flavors.
5. Show students the taste samples you created. Model how to use one end of a cotton swab to dip into the cup and then place it on your tongue to taste the flavor. Describe how you sense the flavor ("This one tastes really tart and sour. It makes my mouth water and my eyes tear up. It is tangy and tastes like citrus.").

6. Throw the cotton swab away. This is an important step to keep the activity safe. Explain that students must use a new swab each time they taste.

Work in small groups to describe tastes (15-20 minutes)

✓ Formative Assessment

Observe students' contributions to the whole-group discussion about taste, particularly in how they make connections between the experience of creating tongue maps and planning a classroom snack inclusive of everyone's needs and preferences (4.SL.1.).

7. Split students up into groups of 3-4 and give each group a tray with a set of all five taste samples. Instruct students to take turns tasting each sample and describing the taste sensation. Remind students that this activity isn't about guessing what the taste is--it is about encouraging using descriptive language to describe the taste.
8. Give groups time to taste and describe each taste sample. Distribute scratch paper and have a student (or a few students) in each group take notes. They will be sharing their descriptions with the class.
9. When groups are done tasting, have representatives from each group write these descriptors on the board.

Consolidate descriptions to form taste categories (20-25 minutes)

💬 **Looking back at our descriptions on the board, do you think we can combine any of these words? Can we sort them into categories?** (i.e., Are tangy and sour similar? Are sugary and sweet similar?)

10. Invite students to come up to the board and circle or otherwise indicate descriptors that are similar and may be combined together.
11. Continue working this way until a manageable amount of categories have formed, about 4-8.
12. Share with students that scientists sort tastes into five main categories: sweet, sour, salty, bitter, and **umami** (savory).
 - If students are confused about umami, give some examples (meat, soy sauce, mushrooms, etc). Refer to descriptors used for the umami sample.
 - Same goes for bitter-- grapefruit or cranberry juice are some good examples.
13. Work with students to match or connect these categories with the categories they formed.

**Note**

While your samples are intended to represent one taste category, they will likely fit in multiple categories. Grapefruit juice is both bitter and sour. Soy sauce is umami and salty.

Create tongue maps (30-35 minutes)

- ... As a class, what did we agree on when describing the tastes?
 - ... What did we disagree on?
 - ... Was it hard to agree on how to describe a taste? If so, why might that be?
14. Explain to students that everyone's sense of taste is unique. While we may taste similar things (a sweet bite of banana), some people may like this taste while others do not. Explain that they will be doing an activity to illustrate just how unique their taste buds are!
 15. Distribute a hand-held mirror to each group. Have students carefully look at their tongues in the mirror. Encourage them to sketch an outline of their tongue on a piece of paper.
 16. Ask students whether they notice anything about their tongues? Encourage them to record details and observations on their sketch.
 17. Explain that using this sketch, students will create a "map" of their tongue. Show students the example tongue map you made.
 18. Explain to students that they will be sampling the five tastes again. This time they will want to pay attention to where on their tongue they sense the taste most strongly. Then, they will record this on their tongue map using colored pencils (one color for each of the five tastes).
 19. Specifically point out that students will need to rely on self-awareness during this activity. This means that they need to pay very close attention to what they are tasting and where on their tongue they sense the taste the most.
 20. Model how to do this for students:
 - Using a cotton swab to spread the taste over your whole tongue.
 - Close your eyes.
 - Sit with the flavor on your tongue for a few moments.
 - Describe to students how the flavor tasted and where you felt it most strongly on your tongue.
 - Take out your tongue map and color in the areas where you tasted the sample most prominently.
 21. If possible, consider standardizing which colored pencils correspond with which taste categories.

22. Ensure that student groups have colored pencils and enough paper for the activity. Encourage them to again take turns tasting each sample, then recording where they sensed that taste on the sketch of their tongue.

Share tongue maps and relate the experience to creating a classroom snack (~10 minutes)

23. After students create their tongue maps, post them on a wall and take about 10 minutes to compare across the whole group.

💬 **What do you notice as you compare our tongue maps?** They look pretty different; Some people tasted different tastes more strongly on different parts of their tongue; etc.

Note: There is a common misconception that there is one “tongue map”, and that there are distinct taste buds only on certain areas of the tongue. This is not quite true. Everyone’s tongue is unique, and different taste receptors can be in different places across the tongue.

💬 **What do you think this can tell us about why we might have different preferences?** Our senses of taste are actually different; I might taste a flavor differently than someone else; etc.

💬 **What might this mean for us as we plan to create a classroom snack?** We might need to let our friends try an unfamiliar food to see if they like the flavor before we decide; We should try to be aware of our taste preferences as we consider different suggestions; It is going to be difficult to pick a classroom snack, because while we are trying not to be biased against certain foods, we also might really not like the flavor of that food; etc.



Additional Background

In case your students ask...

What are taste buds?

- Taste buds are nerves on your tongue. You have nerves all over your body, they help you feel textures, hot/cold, and in your mouth they help you “feel” different flavors.
- This video explains the concept:
<https://www.youtube.com/watch?v=0hwOL91cjwM>

How many taste buds do I have?

- The average person has 10,000

- Kids have more taste buds than adults, which is why they may be more sensitive to certain tastes!

I've heard of supertasters, what does that mean?

- Some people are supertasters! This means their sense of taste is much stronger than the average person and they are most sensitive to bitter tastes.
- About ¼ of people are supertasters.
- There is a very easy test to do to determine if YOU are a supertaster! Here is a link to purchase the materials:

<https://www.amazon.com/Super-Taster-Test-Storage-Instructions/dp/B00BEZ5KJQ>

Lesson 6: Sandwich Swap math | 45-60

Minutes (+ 10 minutes to Capture)

Students have worked with the book *The Sandwich Swap*, which showed that sharing food with others can help build understanding. For the next two lessons, students focus on how to use multiplication to compare amounts. They determine how many times more items students in the book would need in order to share their favorite lunches with their classmates at the end of the book. Later in Module 1, students will work with other issues of scaling recipes in order to share food across the whole class.

Preparation Notes

1. Have your reference for the class' project plan approach handy and be prepared to share it with students to review any thinking they've already done about writing a recipe. You may also want to have a copy of *The Sandwich Swap* on hand for review.
2. Ensure all students have access to the necessary student pages for this lesson: *Lesson 6: Sandwich Swap Math*.

Resource Links

- [Student Pages: Lesson 6: Sandwich Swap Math](#)

Objectives

- Students will use math to explore the idea of sharing food with others
- Students will represent problems involving multiplicative comparison with multiplication and division expressions

Standards Focus

- Grade 4 Mathematics Standards for Operations and Algebraic Thinking:
 - 4.OA.A.1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
 - 4.OA.A.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Vocabulary

- **Portion**, n. A part of a whole. In food, a serving of a particular food or meal

Materials

For the whole class	For each student
• Copy of <i>The Sandwich Swap</i> by Queen Rania Al Abdullah and Kelly DiPucchio • Project plan approach (image or other artifact reserved from Lesson 1)	• Student Pages: Lesson 6: <i>Sandwich Swap Math</i> • Pen or pencil

Activity Steps | Seek

Recall *The Sandwich Swap* story and look back at the original project plan approach (10-15 min)

1. Gather students together and begin class with a discussion. Have a copy of *The Sandwich Swap* on hand in case students need a refresher.

💬 **Who can remember what happened in the story *The Sandwich Swap*? What was the author's theme? And what happened at the end of the story?**

Let students share what they remember about the story as well as their thinking and reasoning about the author's message. Ensure that students recall the moment at the end of the story, where the characters shared different foods with their classmates at a picnic lunch.

💬 **Do you think sharing these foods helped reinforce feelings of curiosity and understanding or judgement? Why?** I think curiosity and understanding because everyone was tasting the different foods; I think curiosity because Salma and Lily were brave and tried each other's sandwiches; etc.

💬 **How do you think the characters knew whether they had enough food to share?** I don't know how they would know; They would have to use some math to figure it out!; etc.

2. Reinforce that in *The Sandwich Swap* students shared different foods with all of their classmates to help them learn about each other, their food preferences, and their cultural foodways. There will be several occasions over the school year where the class will be able to do something similar, including the project of making a classroom snack.
3. Have the group look back at their project plan approach from Lesson 1. Point out any initial ideas related to writing a recipe.
4. Clarify that a recipe is usually written to create a certain amount of food. When they are ready to make the classroom snack, they may need to use some math to make sure they have enough food for everyone to receive a serving, or **portion**.

5. Explain that today, students are going to practice thinking about how Lily and Salma may have been able to create enough lunches to share with their whole class.

Multiplying ingredients (25-30 minutes)

6. Tell students that they are going to work on their own and with a partner to solve some math problems related to the ingredients in recipes.
7. Ask students to open up their student pages to *Lesson 6: Sandwich Swap Math*. They will find two problems to solve.
8. Depending on your students, the lesson can continue in a number of ways.
 - You might want to have students share some strategies before leaving the group to work independently.
 - You might want to require students to work independently for a certain amount of time (5 minutes, for example) before getting together with a partner to share ideas and work together.

Whichever way you choose, give students at least 20 minutes to work on the problems. If students finish early, you could ask them to find another strategy to use.

9. As students work, keep an eye out for students using strategies you'd like to share with the whole class. Strategies that use multiplication to solve the problems are good ones to focus on. You might gather a progression of student examples, from examples that show multiplication ideas to examples that use multiplication expressions for organizing the work.

Problem wrap-up (10-15 min)

10. After students have had enough time to work, even if they aren't completely finished, gather students back for the math discussion.
11. Invite the students whose strategies you noted to share one at a time. Students can ask questions or make comments using sentence stems developed from previous math discussions.
12. Try to highlight the strategies students used that tie into using multiplication to find out "how many times more" or "how many times bigger" something is. If students haven't used actual multiplication equations, show them how multiplication equations could be used to model some of their work.
13. To wrap up, tell students that in the next lesson they will be using multiplicative comparison to figure out how to share portions of their own favorite dish with the class.



PAUSE TO QUICK CAPTURE

Lesson 7: Using math to share my favorite lunch | 50-70 Minutes

Now that students have calculated multiplicative comparisons from *The Sandwich Swap*, they do the same thing with their own favorite lunches. They calculate the ingredients and items needed to provide their own favorite lunch for their classmates, modeling their work with multiplication and division equations as needed.

Preparation Notes

1. Ensure all students have access to the necessary student pages for this lesson: *Lesson 7: Sharing My Favorite Lunch* and *Lesson 7: Carrot Stick Exit Slip*.
2. To support any students who may need some inspiration, have the school cafeteria lunch menu on hand for when students are thinking about their favorite lunch.

Resource Links

- [Student Pages:](#)
 - *Lesson 7: Sharing My Favorite Lunch*
 - *Lesson 7: Carrot Stick Exit Slip*

Objectives

- Students will represent problems involving multiplicative comparison with multiplication and division expressions.

Standards Focus

- Grade 4 Mathematics Standards for Operations and Algebraic Thinking:
 - 4.OA.A.1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
 - 4.OA.A.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Materials

For the whole class	For each student
• Access to or copies of the school	• Student Pages:

- cafeteria lunch menu
- Internet-connected device and projector or Smart Board (optional)

- *Lesson 7: Sharing My Favorite Lunch*
- *Lesson 7: Carrot Stick Exit Slip*
- Pen or pencil

★ **Differentiation Note**

This lesson can be extended into practice with addition and subtraction by calculating the cost of buying enough ingredients to make the lunches to share with the class. If you plan to do that, you will need computers for students to use in looking up the prices of items. They can round prices up to the nearest dollar in order to stay away from calculating with decimals.

Activity | Seek

Reflect on favorite lunches (5-10 min)

1. Remind students that last time, they used math to help them explore the idea that sharing food can help people learn about one another.
2. Invite students to turn and talk with a partner about some lunches they love. Students should try to imagine a meal that represents what they would/could eat every day for lunch, like Salma and Lily in *The Sandwich Swap*. Provide any students that need some inspiration with a school lunch menu.
3. Once they settle on a lunch item or menu, ask students to open their student pages to *Lesson 7: Sharing My Favorite Lunch* and record their choice in the appropriate section.

Comparing ingredients (20-25 min)

4. Explain that students will need to use math to help them figure out how to make enough of their favorite lunch to share with the class. To do this, they will need to solve some multiplicative comparison problems.
5. Explain that students can determine what portion of lunch each student will get. They should use the graphic organizer in their student pages to help them work through and record the multiplicative comparison.
6. Give students 20-25 minutes to work through their problems. As they work, circulate amongst students and make sure they are recording their work using multiplication. The point of the lesson is to think about the requirements as a certain “times more” ingredients or items, connecting that idea to multiplication.

Sharing work (15-20 min)

7. After students have had enough time to complete their work, group them into teams of 4-5 and encourage them to share across the group. They should share their favorite lunches and the reasons why they chose those foods, as well as their math strategies.
8. Then, gather the class together for a closing math discussion.
9. Invite student volunteers to share their work with the whole class.

Relate the experience to creating a classroom snack and closing assessment (10-15 minutes)

: Discuss

 **How might math be important for our approach to creating a classroom snack?**

We need to make sure we have enough of the classroom snack for everyone to be able to enjoy it; When we decide on a recipe, we will need to do math to make sure we have enough ingredients to make the right amount of snack; etc.

 **What are some math strategies you might use to make sure we are able to make enough of the classroom snack?**

Encourage students to reflect on the relevance of the strategies they've shared from the past two lessons.

✓ Formative Assessment

Ask students to complete the student page, *Lesson 7: Carrot Stick Exit Slip*, to assess their understanding of the math content presented in this activity (4.OA.A.1., 4.OA.A.2.)

Lesson 8: Perseverance in the kitchen |

50-60 Minutes

In this lesson, students revisit the work they've done so far and consider how their efforts to seek knowledge will impact their work to create a classroom snack. Students then read and analyze an article about someone who creates and tests new recipes for his job—modeling some of the same thinking they've been doing with regard to the classroom snack project. They learn that this process isn't easy, even for people who do it professionally. In the next lesson, students will have to work through the process of actually narrowing down and identifying a snack that works, which can be tricky to navigate and might take some time. Considering their own sense of perseverance in advance will help set them up to work through that challenging process.

Preparation Notes

1. Create a display of artifacts related to the classroom snack project (to this point):
 - Have your reference for the class' project plan approach from Lesson 1 handy.
 - Post the "Food Allergies, Special Diets, and Food Preferences" chart from Lesson 2.
 - Have a copy of *The Sandwich Swap* out for students to see.
 - Display or project the PBL Process Chart as well.
2. Preview the student page, *Lesson 8: Perseverance in the Kitchen* and consider whether you need to make any adjustments for your students or preview any vocabulary words.
3. Print a copy of the *Jack Bishop Profile* for your class' Profile Wall.
4. Ensure that you and students will have access to the class PBL toolkit.

Resource Links

- [Student Pages: Lesson 8: Perseverance in the Kitchen](#)
- [Unit Resources: Profile: Jack Bishop](#)
- [PBL Process Chart](#)

Objectives

- Students will analyze an article to identify qualities of perseverance in people who create recipes

Standards Focus

- Grade 4 ELA Standards for Reading Informational Texts:

- 4.RI.1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.
- 4.RI.2. Determine the main idea of a text and explain how it is supported by key details; summarize a text.

Vocabulary

- **Perseverance**, n. (review) A quality or characteristic that involves being mindful and using strategies to maintain motivation in order to focus on goals, even when faced with challenges
- **Perseverant**, adj. Steady persistence in a course of action, a set of goals, etc., especially in spite of challenges, obstacles, or discouragement

Materials

For the whole class	For each student
● Internet-connected device and projector or Smart Board ● Project plan approach (image or other artifact reserved from Lesson 1) ● "Food Allergies, Special Diets, and Food Preferences" chart from Lesson 2 ● Copy of <i>The Sandwich Swap</i> ● PBL Process Chart ● Access to class PBL toolkit (started in Lesson 1) ● Printed copy of Unit Resources: Profile: Jack Bishop ● Access to Student Pages: Lesson 8: Perseverance in the Kitchen	● Access to class PBL toolkit (if appropriate) ● Student Pages: Lesson 8: Perseverance in the Kitchen ● Highlighter ● Pen or pencil ● Internet-connected device

Activity Steps | Seek

Revisit the unit Guiding Question and PBL Process steps and connect with the concept of perseverance (~15 minutes)

1. Gather the class in the whole group meeting area. Write the unit Guiding Question on the board: *How can we work together to create a classroom snack that everyone enjoys?* Call students' attention to the display of artifacts you arranged.

Discuss

☞ Which steps of the PBL Process have we worked on so far? We started by

defining the problem; We already have a plan for our approach to making a classroom snack; We've been seeking knowledge about lots of things related to making a classroom snack; etc.

 **Zero in on the “Seek knowledge step.” What are some things we’ve done to find new information and how might these things help us be successful in creating a classroom snack?** We collected information about our own food preferences, allergies, and special diets so we can make sure our snack is safe and enjoyable; We read a book about kids with different food preferences and cultural foodways; We thought about our own biases toward and against foods and how we can express curiosity about our friends’ suggestions for snacks; We explored our sense of taste and discovered that everyone’s sense of taste is unique; We thought about how we might use math to make sure we have enough snack for everyone; etc.

2. Now, display the PBL toolkit and encourage students to suggest any new strategies or tools they could add under the “Seek knowledge” step. Some things students may recall include:
 - Talking with friends who have experience with allergies and special diets (a strategy—learning from experts)
 - Looking at stories and videos to explore other people’s perspectives and their own biases (tools—learning resources)
 - Using maps to understand where certain foods come from (another tool)
 - Engaging in investigations to uncover new information (a strategy)
 - Developing math problems to consider recipe amounts and portions (a strategy—applying math to solve project-related problems)
3. Encourage the group to help you add any new ideas for strategies and tools to the PBL toolkit.
4. Summarize for the group that they’ve been collecting lots of information in many different ways to prepare for making the classroom snack and now there are lots of things they’ll need to keep in mind: people’s preferences and needs, their peers’ opinions, their own biases toward and against certain foods, the personal taste of everyone in the class, ensuring there is enough snack for everyone. It’s a lot to manage just to make a snack!
5. Prompt students to recall their experience from the beginning of the course learning about the DSOs and highlight the DSO, **perseverance**. Review the definition of this word with the group (if you have a reference for the definition in the classroom, refer back to it).

 **Why might it be important to be perseverant when doing a complex project? What do you think perseverance looks like when working on a project?** There will

be many challenges but the end result is worth it; We might not know the answers to all of the problems we discover; We might disagree with our team members; etc

Explore a perseverance case study (35-40 minutes)

6. Suggest that perseverance is an important quality for people as they do lots of different projects and jobs. Today the class will look closely at an example of perseverance.
7. Introduce Jack Bishop by sharing his Profile for the Profile Wall. Explain that you will be reading an article about how this real-life chef applies perseverance in his work.



Note

Two words that appear in Jack Bishop's Profile could be unfamiliar to your students: "anomaly" and "asset." Consider raising these words as new vocabulary terms and defining them with the group.

8. Project the student page: *Lesson 8: Perseverance in the Kitchen*. Skim through the page with students and pause to define any words you identified might challenge the group. Consider recording a simple glossary for this reading on the board for student reference.
9. Have students get into groups of 3-4 and encourage them to read through the article collaboratively, paying close attention to examples of perseverance. Provide students with highlighters and encourage them to mark up their pages and take notes in the margins.
10. Give groups about 15-20 minutes to work with this student page. As students work, circulate amongst groups and provide support as needed. Then, call the group back together.
11. Invite a student volunteer (or a group) to provide a summary of the article for the group. Then, have student volunteers share the examples of perseverance they identified. Record these examples on a sheet of chart paper.
12. Return to the class definition of perseverance and ask students to make connections between the examples they uncovered in the article and their definition of the word.

What new ideas can we learn about perseverance from the chef in the article?
Accept all student responses.

**Advance Preparation Note**

In the next lesson, the class will conduct simple research to find potential recipes for the classroom snack. Pull together a small collection of accessible cooking websites, cooking blogs, and/or cookbooks (if possible geared toward children and including snack options) to facilitate this brief research period. One website we recommend is: America's Test Kitchen Kids Young Chefs' Club:

<https://www.americastestkitchen.com/kids/home>.

Lesson 9: Coming to consensus | 110-160

Minutes* (+ 10 minutes to Capture)

In this lesson, students revisit their project plan and begin to refine their approach by incorporating information and perspectives they've gained from the previous lessons. They discuss any remaining questions about the project, establishing a final set of requirements and limitations. Then, taking this into account, students engage in a brief research period to find recipe options that could work for creating the classroom snack. Finally, the class engages in a persuasive writing exercise to help them come to consensus on the classroom snack.

Preparation Notes

1. Have the reference for the class' project plan approach and "Food Allergies, Special Diets, and Food Preferences" chart near the front of the room.
2. Ensure that you have a collection of accessible cooking websites, cooking blogs, and/or cookbooks (if possible geared toward children and including snack options) to facilitate the brief research period in this lesson.
3. Review school rules to make sure you are aware of any restrictions or requirements regarding classroom snacks. Record these on a sheet of chart paper and set it aside.
4. Review the "options for coming to consensus" (Activity, step #23) and determine which option will work best for your class.
5. Gather and review any resources you typically use to teach persuasive writing.
6. Note that the timing of this lesson will depend on how you, as a class, structure student research and how much time you spend on the persuasive writing aspect of the lesson.

Resource Links

- Recommended website for research: America's Test Kitchen Kids Young Chefs' Club: <https://www.americastestkitchen.com/kids/home>
- [PBL Process Chart](#)

Objectives

- Students will manage conflicting data to imagine an ideal classroom snack.
- Students will use persuasive writing to help the class come to consensus.

Standards Focus

- Grade 4 ELA Standards for Writing:
 - 4.W.1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

- 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- 4.W.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

Vocabulary

- **Persuade**, v. To cause someone to do or believe something by appealing to reason or understanding; to convince
- **Consensus**, n. A general agreement

Materials

For the whole class	For each student
● Internet-connected device and projector or Smart Board ● Project plan approach (image or other artifact reserved from Lesson 1) ● "Food Allergies, Special Diets, and Food Preferences" chart from Lesson 2 ● Chart paper ● Markers ● Collection of resources for recipe research (see Prep Notes) ● PBL Process Chart ● Access to class PBL toolkit (started in Lesson 1)	● Sticky notes ● Narrow markers or flare pens ● Internet-connected device ● Scratch paper ● Writing paper ● Pen or pencil



Timing Note

This lesson includes time for students to conduct final research on potential recipes for the classroom snack. It also includes some flexible suggestions for how to help the class reach consensus on the classroom snack. Both of these steps in the process can take considerable time. Keep this in mind as you plan for this lesson.

Activity Steps | Seek & Adapt

Review project plan approach and consider any open questions about designing a classroom snack (~15 minutes)

1. Gather students in the whole-group meeting area. Explain that now, they'll need to use all they've learned about the needs, preferences, and biases of students in the classroom to identify what they think the classroom snack should be.
2. Review the project plan approach the group outlined in Lesson 1.

 **Based on the knowledge we've been collecting, is there anything we might want to adjust or change about this plan to create our classroom snack?**

3. Encourage students to turn and talk about this prompt before sharing ideas. Then, distribute stacks of sticky notes and narrow markers or flare pens to students. and invite them to record any new details or ideas to help you refine the project plan.
4. Have student pairs share their new ideas, adding sticky notes to the project plan to document any adjustments.

 **Are any new questions coming to mind? Any information we might be missing to help us decide what the snack should be?**

5. Encourage students to turn back to their partner to imagine any new questions. Then, take a moment to collect these questions and record them on the board. Students may mention:
 - Are there any additional rules we have to follow to make food in the classroom?
 - How will we decide on the final choice for our snack?
 - Where will we make the snack?
 - How exactly will we make the snack?
 - Do we need a recipe for the snack?
 - Where will we get the ingredients?
6. Go through the new list of questions and answer as many as you can. Be sure to include the following information:
 - Any additional school guidelines or rules that place limitations on what the snack can be. If you recorded these on chart paper, present them to students now.
 - Everyone has to agree on the snack before we make it.
 - Students will make the snack together in the classroom/school (so it can't require any equipment the school doesn't have).

- List out the equipment students *will* have access to.
 - A recipe will be necessary because students will need to remember how to make the snack again in the future.
 - The teacher (or another adult working in the classroom) will get the necessary ingredients for making the snack.
7. Encourage the group to imagine any additional requirements they might want to include. If the process of answering open questions reveals new adjustments to the project plan, record these details on sticky notes as needed. Then, check in with students to see how they feel about the knowledge they have collected so far.

 **Now that we know all of the requirements and limitations of the project, what should we do next?** We should figure out what the snack will be; We need to decide on a recipe; etc.

Brainstorm ideas and research (30-45 minutes)

8. Divide students into pairs and give them time to further brainstorm and/or narrow down ideas for a classroom snack. You may want to work with students to identify a number goal (each pair should present no more than two ideas, etc.). Give students 5-10 minutes to brainstorm, being sure to reference the "Food Allergies, Special Diets, and Food Preferences" chart.
9. After brainstorming, students will research recipes for potential snack options.

 **What resources should we use and how will we find them?**

10. Collect student ideas which could include: cookbooks, going to the library, watching cooking videos, talking to a chef, talking to someone who works in the cafeteria/food service at school, going to the grocery store, going to a popular place that sells snacks, etc. Work with students to determine which options are feasible given the constraints of your classroom and school.
11. At a minimum, provide students with devices and a list of potential cooking websites or blogs as well as some hard copy cookbooks so that students can research recipes for their snack ideas.
12. Provide student pairs with scratch paper to record their potential ideas for recipes. Encourage them to also keep track of the website, blog, or cookbook in which they found the recipe. Give students 20-30 minutes to research and track their ideas.
13. ****OPTIONAL PAUSE POINT **** If you want your students to conduct more in depth research, consider scheduling interviews and conversations with members of your school community or doing a mini-field trip to a store.

Compile new ideas (~20 minutes)

14. Bring the class together to share their ideas. As students share their snack ideas, document them ideas on a sheet of chart paper.
15. Work together to eliminate any ideas that conflict with classroom food allergies or special diets. Have students turn and talk, using the information from the "Food Allergies, Special Diets, and Food Preferences" chart and the list of snack ideas to guide their discussion. At this point, you may want to have each pair narrow down their suggestions to just one option.



Safety Note

Even if you feel like you have a good handle on the various food allergies and special diets in your classroom, you may want to pause the lesson here in order to confirm your findings with relevant families. Once you are sure you have eliminated all options containing food allergens or ingredients restricted by special diets, you can continue the lesson.

 **What do you think our classroom snack should be? Why?**

16. Invite a few students to share their ideas.
17. Help students recall that, because everyone's food preferences and tastes are different, it may be difficult to agree on one classroom snack. But one of the requirements is that everyone has to agree on the classroom snack—in other words, the class must come to **consensus**. So, this part of the process may take some convincing.

Use persuasive writing to bring the class to consensus (30-60 minutes)

18. Get students thinking about persuasion.

Discuss in pairs

 **Have you ever persuaded (or convinced) someone to do something? How did you do it?**

 **If you were going to persuade (or convince) someone to choose this snack, what would you tell them?**

19. Give students a few minutes to turn and talk about these prompts. Then, invite a few student volunteers to share their thoughts. Record students' ideas on the board.
20. Let students know they will use these ideas to write a persuasive paragraph designed to convince the rest of the class to choose the classroom snack they feel is best.

**Note**

Share with students any relevant resources or materials you use for teaching persuasive writing. This could take the form of a mini lesson, if needed.

21. Distribute writing paper to each student. Give them time to work independently to write a persuasive paragraph in favor of their preferred snack option. If you decide instead to have students work collaboratively, group students based on which snack types they prefer.
22. Encourage students to use some of the persuasive writing ideas generated by the class to guide their writing and to draw from the "Food Allergies, Special Diets, and Food Preferences" chart, the project plan, and the list of any school-based limitations as they develop their reasoning. They should be able to explain why their choice for a classroom snack will work for everyone by incorporating evidence from these resources.
23. Bringing students to consensus may take a long time. Here are some strategies to use as a guide; choose to do whatever will work best for your class:
 - More time-intensive: Invite students to share their persuasive writing with the full group (this may take several sessions). As students share, invite others to think about whether anything in the piece persuaded them to change their mind about the ideal classroom snack, and why. Hold a classroom vote, eliminating the option that received the fewest votes; repeat until the options have been narrowed down to three or four. Then, repeat the persuasive writing exercise with this more limited set of snack options. Go through this entire process until the class has reached consensus.
 - Less time-intensive: Post the persuasive writing pieces around the classroom. Invite students to use independent reading time to read through everyone's piece and to leave a sticky note indicating whether the piece convinced them to change their mind about the ideal class snack. Hold a class discussion (this can also be done in small groups) about how to blend components of the different ideas to create a classroom snack that reflects everyone's preferences.

Identify the classroom snack and track strategies and tools on the PBL Process Chart (15-20 minutes)

24. Depending on how you structure the final part of this lesson, you'll either be able to share the classroom snack "winner" at the close of the lesson or in a day or so after students have all had a chance to vote on their favorite snack idea. Note that you and your students will need to know what the classroom snack is before you move on to the next lesson.

25. Have the group return to the PBL Process Chart and PBL toolkit. Encourage the group to help you add any new ideas for strategies and tools to the PBL toolkit.



Reflect on the PBL Process Chart

Where do you think we are in this process right now? I think we are still Seeking knowledge; We have started to Adapt the approach already; etc.

What makes you think so? We had to do research to narrow down which recipes we wanted to consider; We did more brainstorming with our partner; We've been adjusting our project plan approach by adding new ideas we've learned; We went through a process to decide on a snack; etc.

What strategies or tools have we used to help us with this step? We looked back at all of the new knowledge we've collected and added new ideas to the project plan with sticky notes; We did more brainstorming with our partner; We used websites, blogs, and cookbooks to research snack recipes; We compared our recipe ideas with our requirements and limitations to narrow down our ideas; etc.



PAUSE TO QUICK CAPTURE



Summative Assessment

In this lesson, students collaborate to come to consensus on a classroom snack that fits the needs of all. More specifically, students write a persuasive piece to convince others to consider their option as the final choice for the classroom snack.

Assessment

Learning Targets:

- 4.W.1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

Student Product: Persuasive Writing Piece and Discussion

Students write a persuasive piece in favor of their preferred snack option. They draw from the "Food Allergies, Special Diets, and Food Preferences" chart, the class project plan, and any school-based limitations as they develop their reasoning. They should be able to explain why their choice for a classroom snack is appropriate for everyone by incorporating evidence from these resources. Finally, students reconvene as a whole-group to discuss the snack options, using a class or teacher-determined method for narrowing down the choices and coming to consensus on an appropriate, inclusive classroom snack. Below is a rubric for the product that can be used to assess student learning on the learning targets above.

Rubric

Evidence	Competencies	Next Steps
	Write an opinion piece I can write a piece that clearly states my opinion on our classroom snack.	
	Support p.o.v. with reasons and information I can support my opinion with reasons and information about the class' needs and preferences.	
	Produce writing appropriate to task, purpose, and audience I can produce a persuasive writing piece with the goal of convincing classmates to consider my snack option.	
	Engage in collaborative discussion I can engage in collaborative discussion with my classmates to narrow down our choices and come to consensus.	

Lesson 10: Writing a recipe | 45-60 Minutes

Students work in small groups to compare a set of recipes, identifying their common features. This informs the group's process for collaboratively writing their own recipe so that everyone in the class will know how to make the classroom snack whenever it is needed.

Preparation Notes

1. Determine strategies you will use to collaboratively write a classroom snack recipe (see Activity, step #9 for suggestions).
2. Utilizing the websites, blogs, and cookbooks from the last lesson, choose a few example recipes for students to analyze. They will review these recipes in groups of 3-4, but each student in the group should have a different recipe so the group can compare the recipes' features. Be sure that these examples include several common features of recipes (such as an ingredients list, quantities and/or measurements, and step-by-step instructions). They may also include images, cook times, and even short personal narratives or facts about the recipe.
3. If your classroom snack recipe seems very simple, that is okay! A recipe can be written for even something as simple as microwave popcorn, which will still require that you open the package, microwave the package, potentially add some salt, pour the popcorn into containers, etc.

Resource Links

- [PBL Process Chart](#)

Objectives

- Students recognize that recipes contain an ingredients list, quantities and/or measurements, and step-by-step instructions and use that knowledge to write a recipe.

Standards Focus

- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.
- Grade 4 ELA Standards for Reading Informational Texts:
 - 4.RI.5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
- Grade 4 ELA Standards for Writing:

- 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Vocabulary

- **Quantity**, n. A specific amount or number

Materials

For the whole class	For each student
● Internet-connected device and projector or Smart Board ● Chart paper ● Markers ● Recipe example (you might use one of the recipes a student brought in for the Food and Me unit) ● PBL Process Chart ● Access to class PBL toolkit (started in Lesson 1)	● Recipe for analysis in small groups (can be printed or presented on a device) ● Internet-connected device (if needed)

Activity Steps | Seek & Develop

Identify common features of recipes (15-20 minutes)

1. Let students know that today, they'll spend some time creating a recipe for their classroom snack, so everyone in the class will know how to make it.
2. Project a sample recipe so that everyone can see it. If it is a recipe brought in by a student during Food and Me, invite them to share a bit about the recipe and what food it makes. Remind students that a recipe is a set of instructions that shows the reader how to make a certain type of food.
3. Prompt the group to share what they generally notice about the sample recipe you are displaying.

Discuss in pairs

 **Have you ever used a recipe to make food? How did it go?**

4. After students have a chance to discuss their experiences with recipes in pairs, invite a few student volunteers to share with the whole group.
5. Combine students into groups of 3-4. Distribute the recipes you prepared so that each student in the group has a different one (provide devices if necessary). Encourage them to compare their recipes using these prompts as a guide:

- What do all of your recipes have in common?
 - Why do you think all of your recipes have these similarities?
 - What distinct features do you notice?
6. Give student groups 10–15 minutes to compare their recipes. As students talk, circulate to get a sense of their thinking.
 7. Invite a few student groups to share what they noticed with the full class. Guide students to recognize that recipes tend to have certain common features including a title, an ingredients list with **quantities** (amounts) and/or measurements, and step-by-step instructions for how to prepare the food. Some also have photographs or other images, estimates for how long a recipe takes to make, or even short stories or information about the recipe, where it comes from, etc.

Write the classroom snack recipe (20–30 minutes)

✓ **Formative Assessment**

Previous lessons have prepared students for this unit project: a collaborative effort to decide upon and write a recipe for a classroom snack. Depending on the approach you take for writing the recipe, your observations may help capture students' ability to engage effectively in collaborative discussions (4.SL.1.) and to produce writing appropriate to task, purpose, and audience (4.W.4.).

8. As a class, develop a recipe for the classroom snack on a sheet of chart paper.
 - If your class is maintaining a cooking blog as part of the Module 1 culminating project, explain that you may post the recipe for the classroom snack there.
 - If you are planning instead to create a hard copy cookbook for the Module 1 culminating project, explain that the classroom snack recipe can be included.
9. If the classroom snack is fairly simple, consider doing this as a full-group discussion. To promote active participation, you might have students:
 - Brainstorm recipe steps in small groups before coming to consensus as a full class
 - Work in small groups to calculate the appropriate quantities of ingredients such that the classroom snack recipe will always yield enough for everyone to enjoy
 - Take turns adding a line to the class recipe
 - Suggest edits to the recipe as it is being created
 - Add sketched images or other interesting details
10. As the class creates their recipe, it is important that they document the name of their recipe, the ingredients needed, the quantity and/or measurements of each ingredient, and a step-by-step process explaining how to make the snack.
11. Let students know that now that you have a recipe for the snack, in the next lesson they'll be able to make it!

Reflect and track strategies and tools related to the PBL Process steps (10-15 minutes)



Reflect on the PBL Process Chart

Where do you think we are in this process right now? I think we are on Develop the solution; I think we had to go back and Seek knowledge; etc.

What makes you think so? We just wrote our recipe, which is going to be the solution to our problem; We had to look back at other recipes to make sure our own recipe included all the right parts; etc.

What strategies or tools have we used to help us with this step? We compared recipes for common features; We documented our own recipe by writing down all of the steps; etc.

12. Encourage the group to help you add any new ideas for strategies and tools to the PBL toolkit.

Lesson 11: Safety first | ~45 Minutes

In this lesson, students engage with video and informational text resources to learn about the importance of appropriate safety procedures during food preparation. They add any relevant food safety prep steps to the recipe for their classroom snack.

Preparation Notes

1. Preview the USDA video, *Food Safety in Seconds* and prepare to share it with students.
2. Print out a copy of the *Clean Fact Sheet* for each student.
3. If you think it would be beneficial to touch base with “food safety experts” in your district (cafeteria staff, culinary arts educators or students, etc.) before you facilitate this activity, plan to reach out before teaching this activity. They could either help inform your thinking about the activity, or could visit your class to share their expertise about food preparation and safety.



Note

Throughout the course, students will have opportunities to draw on the expertise of cafeteria and food service staff at your school. This lesson could be a great opportunity to begin forming this relationship between your class and the staff.

Resource Links

- Video: *Food Safety in Seconds*, USDA:
https://www.youtube.com/watch?v=iguM_pgetzo
- PDF: *Clean Fact Sheet*, Partnership for Food Safety Education:
<https://www.fightbac.org/food-safety-basics/the-core-four-practices/>

Objectives

- Students will learn about basic food safety practices in preparation for preparing their classroom snack

Standards Focus

- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.
- Grade 4 ELA Standards for Reading Informational Texts:
 - 4.RI.1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.

- Grade 4 ELA Standards for Writing:
 - 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Vocabulary

- **Food poisoning/foodborne illness**, n. Illness caused by germs (bacteria, viruses, etc.) or other contaminants in food

Materials

For the whole class	For each student
• Internet-connected device and projector or Smart Board • Classroom snack recipe (recorded in Lesson 10) • Access to video: Food Safety in Seconds • Access to PDF: Clean Fact Sheet	• Copy of PDF: Clean Fact Sheet • Highlighter • Pen or pencil

Activity Steps | Adapt

Introduce food safety (~25 minutes)

1. Ask students to think back to any time they made a recipe or prepared a meal or a snack.

Discuss in small groups

💬 **When you made food, what steps did you take when preparing those foods to help make sure the food was safe to eat?**

At this point, students may not have clear ideas about what this means, and that is okay. Some students may share some ideas related to washing things, or cooking something until it reaches a certain temperature.

💬 **What should we consider in regards to food safety when we prepare food?**

If students don't bring up the idea of getting sick from eating food that might have germs on it or food that has "gone bad" (commonly called **food poisoning**), ask if anyone may have experienced food poisoning before, or share your own food poisoning story.

2. Confirm for students that lots of us have food poisoning stories--because it's really common to get food poisoning! The CDC (Centers for Disease Control) estimates

that 48 million people get food poisoning per year!
(<https://www.cdc.gov/foodsafety/foodborne-germs.html>)

 Note

You could take a moment to have your students do some math talk. There are about 327 million people in the United States. If you divide that number by the estimated number of people who get food poisoning each year, it means that approximately 1 out of every 7 people get food poisoning each year.

Ask students if they understand what “1 out of every 7 people” means. Based on the idea of 1 out of every 7, how many people in the class on average might get food poisoning this year. They can expand the calculation across the grade level or even the school for more practice!

3. You may want to introduce the term **foodborne illness**, which is the more formal, scientific term for food poisoning.
4. Refer back to any of the cleaning or cooking best practices students may have shared earlier. Let students know there are four main practices that experts have identified to help people with food safety and limiting foodborne illnesses.
5. Explain to the group that they will now watch a video called *Food Safety in Seconds*. As they watch, encourage students to listen for the four key practices of food safety.
6. Play the video through once, and if you feel it is necessary, play it a second time.
7. After the video is over, ask if students can share back the four key practices the video identified (clean, separate, cook, chill) and describe them in their own words.
8. Remind students that these are practices—behaviors that have been recommended for specific reasons. They are not strict rules, because they may not apply to every situation.

Determine how food safety relates to preparing the classroom snack (~20 minutes)

9. As a class, determine which of the food safety practices applies to preparing their classroom snack.
10. Ask students to get into groups of 2-3. Distribute copies of the *Clean Fact Sheet* such that each student has one. Encourage students to review the fact sheet together and look for any information they think would be helpful while making the classroom snack. Provide students with highlighters and pens or pencils so they can mark up their copies. Give groups 10-15 minutes to work with the fact sheet.
11. Then, have groups share their thinking with the full class. Help students pay particular attention to the following guidelines:

- Clean surfaces before and after food prep
 - Wash your hands before, during, and after food prep
 - Wash your hands after sneezing, coughing, blowing your nose, or touching garbage
 - Rinse produce
12. Return to the recipe the class wrote. Add in any new steps to account for these food safety practices.

**Note**

It is likely that students will only need to focus on the “Clean” safety practice as they prepare their class snack. If this is not the case, visit <https://www.fightbac.org/food-safety-basics/the-core-four-practices/> to download the other relevant fact sheets and print these for students.

You will want to reference the steps of food safety *every* time you work with food in the classroom. This is why having tangible products referencing each of the steps is helpful. Consider having students create a poster representing each of the steps: Clean, Separate, Cook, and Chill, and/or download and print pre-made posters from this website: <https://www.fightbac.org/food-safety-basics/the-core-four-practices/>.

**Advance Prep Note**

In the next lesson, students will actually follow the recipe to make the classroom snack. Make a list of the ingredients you will need and any relevant quantities. You will also want to ensure your classroom has an adequate stock of tools for food preparation.

Lesson 12: Create, share, and reflect: Our classroom snack | 80-100 Minutes (+ 30 minutes to Self-assess)

Students follow the recipe they developed to create a classroom snack that everyone can enjoy safely. Then, they reflect on the experience over the course of the unit, looking back on the unit Guiding Question, and considering the steps of the PBL Process they have followed along the way.

Preparation Notes

1. Collect and arrange all of the ingredients, tools, and cleaning supplies students will need to create their classroom snack.
2. Post the classroom snack recipe somewhere accessible to all students.
3. If you think it would be beneficial to touch base with “food safety experts” in your district (cafeteria staff, culinary arts educators or students, etc.) before you facilitate this activity, plan to reach out before teaching this activity. They could either help inform your thinking about the activity, or could visit your class to share expertise.
4. Prepare a display of the various group artifacts from the unit, including the project plan approach students have been working from, the “Food Allergies, Special Diets, and Food Preferences” chart, and the PBL Process Chart. The snack recipe should also be included in this display once students have finished preparing it.
5. Record the unit Guiding Question on the board: *How can we work together to create a classroom snack that everyone enjoys?*



Note

Throughout the course, students will have opportunities to draw on the expertise of cafeteria and food service staff at your school. This lesson could be a great opportunity to begin forming this relationship between your class and the staff.

Resource Links

- [PBL Process Chart](#)

Objectives

- Students will follow food safety practices as they prepare their classroom snack.
- Students will reflect on how they persevered through challenges during this project.
- Students will reflect on the final steps of the PBL Process while enjoying their classroom snack

Standards Focus

- Grade 4 ELA Standards for Speaking and Listening:
 - 4.SL.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.
- Grade 4 ELA Standards for Writing:
 - 4.W.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Materials

For the whole class	For each student
● Internet-connected device and projector or Smart Board ● Classroom snack recipe ● Ingredients and tools needed for preparing the classroom snack ● Cameras or other photo documentation tools ● Project plan approach ● "Food Allergies, Special Diets, and Food Preferences" chart ● PBL Process Chart ● Access to class PBL toolkit (started in Lesson 1)	● Cleaning spray, sponges, and paper towels ● Food safety gloves ● Access to a sink and soap for washing hands ● Journals ● Pen or pencil ● Internet-connected devices

Activity Steps | Develop, Reflect, & Present

Prepare your space for making the snack (10-15 minutes)

1. Let students know they'll now work in groups to create their classroom snack! First they will need to put into place any of the safety and cleanliness procedures they identified in the last lesson. This might include:
 - Clean surfaces before and after food prep
 - Wash your hands before, during, and after food prep
 - Wash your hands after sneezing, coughing, blowing your nose, or touching garbage
 - Rinse produce
 - Wear food safety gloves

2. Share with students any ideas about where they will work (you may want them to work at their tables, or you might have designated a certain area of the classroom, etc.). This should help students focus their cleaning on a certain area.
3. Use the recipe the group developed over the past two lessons to establish roles. Some ideas for establishing roles include:
 - Some students can read the recipe while others gather the ingredients and tools required
 - Students should also be in charge of cleaning and drying surfaces, tools, and any fresh ingredients
 - If your class is very large, you could consider having a group of students focus on portioning, presentation, and distribution of the snack
 - If your recipe is more complex, you could consider establishing small groups to complete certain steps of the recipe or even take an assembly line approach
 - Additionally, consider having one group of students document the process using photography. These images can be added to the recipe blog post or cookbook which will be developed as the module culminating project.

**Note**

It is recommended that students have access to devices they can use to take photos to document their experience. If you have not already done so, you may want to set aside some time to discuss methods for organizing photos on devices. For example, students may need a mini-lesson in how to create folders and name image files in ways that will help them easily identify their photos at a later time, particularly if the devices used for taking photos are shared with other students.

Prepare the classroom snack (30-40 minutes)

4. Once you feel that students understand how the safety procedures and roles apply to preparing their classroom snack, you can get started with snack preparation.
5. Work as a class to prepare the class snack following the recipe you developed and maintaining the roles you established as a group. As students are working, if conflicts or confusion arise, take the opportunity to stop and engage the whole class in a brief discussion to move the project forward. These moments may stand out in students' minds as opportunities to practice and reflect on perseverance.
6. Ensure any students responsible for photographing the process are supported as they use devices to document the group's work.
7. Give students plenty of time to clean and restore the classroom once the food preparation is complete.

Pass out the classroom snack and reflect on the project experience (25-30 minutes)

8. Once the classroom is restored, work with students to portion and pass out the classroom snack. As the class enjoys their snack, prompt them through a series of reflections referencing the display of artifacts you created.

Discuss in pairs

- ☞ **What did you think about following the recipe we wrote for the classroom snack? Was it fun? Easy? Hard?**
 - ☞ **Did all of the snacks come out exactly the same? Why or why not?**
 - ☞ **Do you think we need to make any changes to our recipe? If so, why?**
9. If students do have ideas for additional steps to amend the recipe, mark the chart paper copy of the recipe with these edits. Formal edits to the recipe can be made at a later time and finalized when you are ready to work it into the class blog or cookbook at the end of the module (see the Note at the end of this lesson).
 10. Remind students of the unit Guiding Question: *How can we work together to create a classroom snack that everyone enjoys?*
 11. Encourage students to think on this Guiding Question and the project plan they followed throughout the experience. Distribute student journals and prompt students to take about 15 minutes to individually record their thoughts on two or more of the following questions (choose focus or have students choose).

Journal

- **How do you feel about our classroom snack?**
- **What was the hardest part of this project? Why?**
- **What was the most rewarding part of this project? Why?**
- **Do you think you used perseverance across this project? How so?**
- **Do you think you were a kind and compassionate community member during this project? How so?**
- **Do you think you used other skills? What skills?**

Revisit the PBL Process steps and track strategies and tools related to the PBL Process steps (~15 minutes)

12. Once everyone is done with their snack, gather the class in the whole group meeting area.

☞ **Which steps of the PBL Process did we work on recently? What makes you think so?** We went back to Adapt the approach because we added some food safety and cleaning steps to our procedure; We Developed the solution because we followed our recipe to make the snack; We are Reflecting on the experience right

now; We haven't really Presented the work to anyone outside the classroom, yet, but we are going to share the classroom snack recipe with others when we make our class food blog/cookbook; We will Present the work using the photographs we took!; etc.

13. Now, display the PBL toolkit and encourage students to suggest any new strategies or tools they could add under the "Adapt the approach," "Develop the solution," "Reflect on the experience," or "Present the work" steps. Some things students may include:
 - Revising the recipe by adding new steps to the procedure
 - Following safety procedures for food prep and cleanliness
 - Using appropriate tools and to cook
 - Discuss thoughts on the experience in pairs, small groups, or independently in journals
 - Photos as a way to present work to others
14. Encourage the group to help you add any new ideas for strategies and tools to the PBL toolkit.
15. Explain to the group that preparing the classroom snack will be a regular chore for them to complete. This way, there is always something available in the classroom to snack on if anyone ever feels hungry while they are learning about food.

**Note**

Consider taking a moment to work this regular chore into your classroom routines, establishing a schedule and system to decide who will be responsible for preparing the classroom snack as needed.

**STOP TO SELF-ASSESS****Note**

Be sure to preserve the classroom snack recipe and any relevant edits so that it can be incorporated into the class blog or cookbook when the group gets to the end of the module (see Unit 8: Our Food Blog). You may also want to preserve the "Food Allergies, Special Diets, and Food Preferences" chart as a regular reference for the group.

Consider assigning a small group of interested students to format the classroom snack recipe in Word or Google Docs prior to Unit 8. Or you can type it up and format it in Google Docs as a class. This could be a good opportunity to work in any

photographs the students took to document the process. In Unit 8: Our Food Blog, the class will think about how to formally work this recipe into the class blog or class cookbook.