BESD 6th Grade: Science
Earth in Space: Exploring Space Systems Investigate/Organize Notes

Generalizations: 3. The sun and a collection of objects, including planets, their moons, and asteroids composes the solar system. (ESS1.B)
Questions: 3a. What is a planet? 3b. What is a moon? 3c. Why do some planets have more moons than others?

OVERVIEW:
The Investigate and Organize Phases of the unit are meant to provide students with time to explore and make meaning of their learning.

- In the Investigate Phase students are given various artifacts and experiences to help develop an understanding of concepts and build generalizations. Strategies to support Investigation can be found on page 151 of the Concept-based book. We also need to help student focus on process skills through modeling, group practice, and independent mastery:
    - Accountable talk/Communication: stay on topic, use information that is accurate and connects to the topic being explored, list and think thoughtfully about what peers say (Concept Based Inquiry in Action, p. 89). I can express myself clearly, motivate my audience, bring ideas together, use technology to support my message, and I can reflect on my communication
    - Making connections: supporting students as they work to build bridges between current and new learning (watch for misconceptions)
    - Collaboration: I can work with others as a team, build team related skills, build a sense of myself, use technology effectively, and help my team solve problems.
- The Organize Phase provides students with time to make sense of their findings and bring ideas together. Strategies to support Organization can be found on page 173 of the Concept-based book. Remember to:
    - Select an organizer that you will use to help students organize their thinking. Depending on your goals, there are different organizers that can be used, such as: comparing, understanding processes or systems, and summarizing
        - The Cross-comparison chart (inquiry chart) is a great tool for students to gather thinking (p. 174 Concept-based book)
    - Find ways for students to represent what they have learned by creating their own model (see page 198 of the Concept-based book for ideas for models) and remember that models can be simple labeled drawings as well as three-dimensional creations

DIRECTIONS:

- Investigation Options
    - Select one or more of the options below to help students explore unit questions and develop an understanding of the concepts
    - Be sure to revisit your Frayer Model or KWHL Charts after each investigation and add new learning as a group. Adding new learning supports the Organize Phase. Be sure to use unit questions to support your discussions and create question stems.

        - **Exploring Space Systems Artifact Bags:**
            - See folder resources for support in creating artifact bags for students to explore and support notetaking/data collection (see folder materials for artifact bag support as well as an organizer to gather notes)
            - These bags should be used during the investigation phase, but materials can be brought out to support learning throughout the unit. Remember that you can share out paper copies and electronic copies of materials. With electronic copies you can have students use various tools to support access (read aloud, translations, dictionaries, etc.)
                - Station Ideas:
                    - Note-taking:
                        - Provide students with a note-taking scaffold such as sticky notes or ARC Most Interesting Question organizer. See folder materials to copy a student note taking scaffold
                    - Station Setup Ideas:
                        - Students can visit each station or become an expert on their station and teach others

        - **NASA Exploration: Our Solar System and The Earth and The Solar System**
            - Check out these websites to provide engaging investigations for student teams.
            - Ideas for use:
                - Explore and navigate the site as a whole class and be sure to share how Read and Write for Google can be used for read aloud, translations, and dictionary for support.
                - Assign student groups sections of the site to explore and then report back to the class on what was learned.
                - Allow student groups to select any area of the site, develop their own question, and report back to the whole group.
                - Find topics that you want all students to experience and lead as a whole class with small group and whole group discussions.
                - Create a tour/scavenger hunt of the site to locate certain things and share findings with the class. This tour can be lead through Classroom or a Google Form.

- Organize Options:
    - After each investigation, have students participate in a group discussion about what they learned and be sure to practice the process skills throughout these phases.
        - Go back to your Mini-Inquiry questions to guide the discussion and create question stems to support students
        - Use the inquiry chart (see folder resources) to gather group thinking about what students have learned. You can use the digital version and complete on the computer together or make a class poster that you can fill in together.
        - Be sure to go back to your Frayer Model or KWHL Chart that you started in the first phase and see if you can add any new learning to these charts about unit concepts

Reflection and Assessment:

- Reflection:
    - Be sure to visit the section on Reflection for ideas. It is important to come up with routines to support student reflection opportunities. It would be wonderful to have a closing routine at the end of each inquiry session where students reflect on their learning.
        - Consider using the Generalizing about Reflection Strategy (p. 281), check out the folder resources for reflection that provide a slideshow with reflection questions. You can collect student ideas each day. Consider changing the text color of the responses and have students look at previous responses before adding new reflections. Be sure to help students set learning goals (see slides 7 and 8). There are other reflection strategies on page 280 of the Concept book.
- Assessment:
    - Use the Organizers completed so far (Frayer/KWHL) as an assessment checkpoint (see pages 160 and 200 of the Concept book for support):
        - How much are students able to add to these organizers (these organizers will be revisited throughout the unit and you will be able to see how student learning develops)
        - Can students identify/create examples of examples and non-examples of concepts
        - Are students asked to create models to share their current understanding of ideas and how complete/accurate are their models

Things to Consider/Remember:

- Collect your reflections and ideas on how to make these units even better and share with the team
- These ideas are just to get you started, you can try other option and add other ideas when you are ready
- Be sure to revisit your organizer through the unit phases and show students how you can add new ideas and reflect on how your learning can change and grow. You can use new colors to add new ideas
    - HOWEVER, always revisit previous thinking before you add new ideas.
- How are you planning for diverse student needs?

    - Do you have multiple ways for students to access content?
    - Are you considering your language learners?
    - Do you have multiple ways for students to demonstrate learning?

Questions:

- Email (tdabbs@be.wednet.edu) and remember, we will revisit our units during our WAVE Collaboration days