

## 7<sup>TH</sup> GRADE SCIENCE

Mr. Stark - Website: <https://sites.google.com/wrsd.net/mrstark>  
2019-2020

Welcome to 7th grade science! It is an amazing world we live in and it sure seems like we live in an age where all of our questions have already been answered. A quick search on Google or another internet browser and you can come across the “answer” to just about anything, either in the form of a video tutorial, a written article or even a podcast. It would seem that it has “all been done before”, and to some extent this is true. It has been “done” before, but that doesn’t make it science. There is more to science than just *doing* or repeating what has already been done. Science is repeatable and often requires multiple trials from multiple scientists, using multiple methods to come to a similar conclusion. I think we can all agree that gravity is the force that keeps our feet firmly planted to Earth while keeping Earth and all of our solar system’s planets orbiting the sun in an elliptical motion. But, do you have proof? Have you experimented to see how different objects respond to being dropped from different heights, or, possibly through a chamber with no air? Sure, we “know” a lot, but that isn’t science.

This year, you will be immersed in *science* through your explorations of ecology, chemistry, genetics, and physical science. You will investigate what has already been discovered and conduct your own experiments to prove those discoveries. You will even work towards making your own discoveries by exploring questions and ideas you have always had running through your mind.

This syllabus is a one stop guide for any questions you may have about your science class this year. Here you will find information on assignments, curriculum, what happens when you are absent, and a number of other important facts for the year. If there are any questions throughout the year, please use the information below to contact me.

### Quick Find Guide (click on any link to quickly navigate the syllabus):

1. [Class expectations](#)
2. [Seventh Grade Core Topics](#)
3. [How Students are Graded](#)
4. [Extension Projects](#)
5. [Absentee Policy 2019-2020](#)
6. [Classroom Policy 2019-2020](#)
7. [Materials Needed for Class:](#)
8. [Submitting Work Online](#)
9. [Extra Help and Contacting Mr. Stark](#)
10. [Group Projects](#)
11. [The outdoor classroom](#)
12. [Consent Forms and Final Notes](#)

### **Class expectations (Taken directly from CTMS’ 5 “P’s”)**

1. **Present** - I will be in science class on time and will always be ready to learn.
2. **Polite** - We will work *together* as a team and will resolve problems in a kind and courteous manner while respecting everyone and everything in and out of the classroom.
3. **Proud** - I will always be proud of the work I do in science class.
4. **Prepared** - I will be prepared every day for class, which includes; a pen/ sharpened pencil, agenda, notebook and binder, any assignments that are due and a free reading book.
5. **Professional** - It is my job to complete work in this class with the utmost effort. I recognize that I am a role model for other students in the class.

## **Seventh Grade Core Topics (standards are in parentheses next to topic)**

### **I. What is Science?**

*Concepts: Inquiry in science, Metric Units*

- What is science and who are scientists?
- Lab and classroom safety
- Tools of a scientist: Measuring and collecting data accurately (includes review of the metric system)
- The scientific method and scientific inquiry

### **II. Ecology**

*Concepts: Change, Human Influence / affect, interdependence, biodiversity, energy*

- Interactions of abiotic and biotic factors
- Symbiotic relationships of organisms (LS2-2)
- Limiting factors within an ecosystem (LS2-1)
- Biodiversity and human use of resources (LS2-6)
- Food webs and energy flow within an ecosystem (LS2-3)
- Human intervention to protect ecosystems (LS2-4, LS2-5, ESS3-4)
- Effects of catastrophic geologic events on ecosystems (ESS3-2)

### **III. Genetics, Heredity and Reproduction**

*Concepts: Organization, Probability, Order*

- The reason behind reproduction: sexual vs. asexual reproduction in organisms and reproductive structures. (LS1-4, LS3-2)
- Genetics of sexually reproducing organisms (LS3-4)
- Chromosomal structure and function (LS3-3)
- DNA: A fingerprint of yourself
- Mutations and other genetic changes within organisms (LS3-1)
- Epigenetics vs genetics (LS1-5)
- Genetics in your life: Genetic Engineering, Cloning, forensic science, gene therapy (LS4-5)

### **IV. Evolution of Organisms**

*Concepts: Change, Systems, Organization*

- A return to reproduction: reproductive strategies of organisms (LS3-2)
- Natural selection vs artificial selection (LS4-4, LS4-5)

### **V. Waves and the Digital Age**

*Concepts: Organization, Function, Form, Energy*

- What is the electromagnetic force and how can it be changed? (PS2-3)
- Applying force without contact: Using the EMF (PS2-5)
- What are waves and how are they measured? (PS4-1)
- How does energy travel via waves? (PS4-1)
- How do we use waves? (PS4-3)

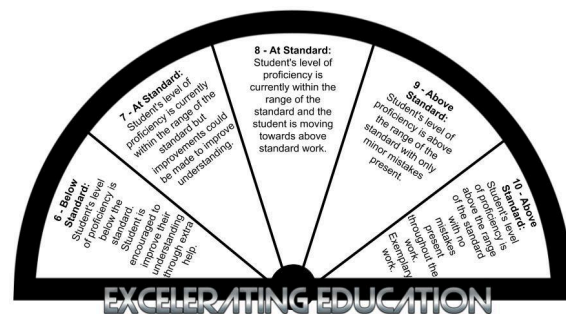
## **How Students are Graded**

### **Excellerating Education**

1. All students start off *each* quarter with an A+. Each student will be given 20 points to start the quarter.
2. All assignments are *standards-based, low-stakes* assignments. Low-stakes means that assignments are worth small amounts of points (i.e. 5 or 10 points). This includes both in-class projects and assessments of all kinds. Standards-based means that assignments are directly linked to standards (either state, district, or my own) and that students must meet or exceed the standard. This then determines the student's score on the assignment. For example; I might set the expectation on a quiz between 75% and 85%. In other words, all students must get between 75% and 85% of the material answered accurately on the assessment to meet the standard. If a student meets the standard, say with a 78%, they receive an

“8” on the assessment. If a student fails to meet the standard, say with a 60%, they receive a “5” on the assessment. And, if a student exceeds the standard, say with a 92%, they receive a “10” on the assessment.

3. Typically there will be between fifteen and twenty assignments given per quarter totalling to an additional 100 to 150 points.
4. With this system, a student who is below standard on every assignment throughout the quarter will likely receive a D and the only way he/she could fail is to neglect turning in assignments (receiving a zero on the assignment). Students who meet all expectations, or at least the majority of them throughout the quarter will receive a final grade for the quarter likely between a 70% and 85%. Students who exceed expectations throughout the quarter will likely receive a final grade for the quarter between 90% and 100%. Grades shall never exceed 100%.
5. Every graded assignment will have an excelerating education speedometer on it, as pictured to the right. Once again, there will only be a 5-point or 10-point speedometer.
6. **Tokens:**
  - Students are given 3 tokens to start off each quarter which will give them the ability to redo ANY assessment or assignment including projects. The new grade they receive on the assignment completely replaces the old grade.
  - Unused tokens expire at the end of each quarter and each student starts off the next quarter with three new tokens.
  - A **completed** token form must be turned in for any assignment a student would like to have reassessed. The token form is due no later than **seven days** after an assignment has been returned to a student. The return date of the assignment and token form due dates are always noted on each graded assignment by the student.
  - There are three types of token forms students can use. Students can use a mix of all three token forms throughout a quarter or use multiples of the same forms:
    - i. [Late Assignment token forms](#) are for any assignments that are being turned in late by the student. These forms should be used the least or, preferably, not at all, since students are given more than adequate time to complete assignments in the classroom.
    - ii. [Complete Redo token forms](#) are used when a student prefers to completely redo an assignment from start to finish. These are more often used for assessments and are required for any assessments throughout the school year.
    - iii. [Five or Less token forms](#) are used for assignments that need some repair, but are overall in good shape. There must be no more than five missed sections / questions on the assignment to use this token form and it may not be used on any assessments during the school year.



#### Reasons to use and benefits of this system:

- Consistency in grading allows for clearer communication between myself, the students, and parents. All assignments are either worth 5 points or 10 points. A “1, 2” or a “6” will always mean the student’s work is below the standard while a “3, 4” or a “7, 8” means that the student’s work is meeting the standard and a “5” or a “9, 10” means that the student’s work is above the standard.
- A simpler system raises the bar for every student’s performance. While some students will be satisfied with a 73% on an assignment, this number might be below the level necessary for a student to be proficient, therefore they did not meet the standard.
- While the bar has been risen, the use of tokens allows students to make mistakes and repair their

errors while encouraging them to see what areas of the standard they are struggling with.

### **Important notes in regards to this grading system:**

1. There is little to no down time in my classroom. Students are expected to give each class their all, each and every day. With this expectation in place, **there is no necessity for homework in my classroom.** This does not mean that students will never have to invest any out of school time into my class. There will still be assessments to study for, projects that students might want to fine tune, and other activities that I request they finish at home. But other than those infrequent occasions, there is no consistent homework in my classroom.
2. Powerschool will be updated as frequently as possible, but ultimately it is the student's responsibility to stay on top of their own grades. I will distribute progress reports during both the middle of the quarter and the end of the quarter.

### **Typical Assignments**

#### **Labs / In-class Activities**

- This is the bulk of what we do in class. Typically there will be multiple activities which take one or more full class periods. Student understanding will be assessed with many types of both formative and summative assessments including; simple worksheets, lab reports, journal entries or completed products such as posters, videos, and models.
- Most labs and activities are completed with partners or a group. This not only encourages collaboration between peers, but also allows for a more realistic approach to scientific investigation since very few scientists work completely alone. Although, students will often work in groups they are more often assessed individually during and at the end of projects with the possibility of a group grade also included.

#### Binder Pages

- Students complete binder pages in order to summarize what they have learned at the end of each unit / topic. Binder pages are high-quality, colorful, clear, single-paged documents that highlight the key points of the unit / topic. The binder pages are excellent ways to review the material learned but will also be used in eighth grade to help review for the 8th grade science MCAS. There will be approximately ten binder pages throughout the school year and students will be given between 1-½ and 2 class periods to work on each individual page. If students need additional time they can work on the assignment at home and turn it in on the due date which is typically seven days after it was started in class.
- Students will receive a rubric at the start of each topic for the binder page so that they can better prepare themselves for this assignment. All binder pages must be the student's original work and although, students can use a computer to type the words for the binder page they may not directly use images taken from a search database such as Google images. They may trace images and color them in on their own.

#### **Summative Assessments**

- These are usually relatively quick quizzes (less than a class period) that are used to check in with student understanding. Some assessments will only be a few questions long while others will be up to 10 multiple choice questions with additional components (such as fill in the blank, short answer, etc...).
- Assessments are used to check in with student understanding and application of material, not to see how well they can memorize information. Students will often complete multiple quick assessments prior to any quizzes to insure that they understand the material clearly.

## **Extension Projects**

Extension projects are the only out of class projects I make available throughout the school year, and they are completely optional. The goal with these projects is to get students excited about engineering and science and to really get their hands involved in the creation of some awesome STEM based projects.

1. The extension projects can range from building an electric-powered crane to a hydraulic marshmallow launcher. Students are encouraged to share ideas with me and I will be happy to put something together based upon their interests.
2. There are typically two extension projects given per quarter (there is only one given for the fourth quarter). The extension projects can earn a student up to **ten** additional points for the quarter.
3. Students who complete a project will be given a marking on the back of their license to learn and those students that complete between FIVE and SEVEN of the extension projects are awarded for their efforts at the end of the year.
4. Extension projects are graded (only extra points) but the extension project will not count against the student in any way and it is NOT required. Please check out more about extension projects on [this page](#) of my website.

## **Absentee Policy 2019-2020**

1. A weekly schedule will be made available at the beginning of every school week which lists all of the assignments, activities and assessments students can expect during the week and on occasion what to expect of the upcoming week(s). All material will have hyperlinks provided through Google which will make accessing material easy for any student or parent.
2. If a student is absent she/he must complete any missed work. The absent student will have the same amount of time to complete their homework and/or class work. All information can be easily accessed via my website. It is the student's responsibility to find out what work he/she has missed.
3. Absences happen, if a student misses one or more days of school he/she will be given the same amount of time to complete the assignment as other students. For instance, if all students were given two full days to complete an assignment, once the absent student returns to school he/she will be given two full days to complete the assignment upon their return. Absent students should first look on my website which is typically updated day-to-day. Since not all work can be easily posted on the website, students should ALWAYS check the **Student Information** section in the classroom (near the license to learn check in station). This area will have all work students missed on the day(s) they were absent. Students must, on their own time, seek out myself or another student to find any missed notes, assessments or labs. Students who were absent and do not hand in the assignment when it is due for them will be given a zero for that assignment.

## **Classroom Policy 2019-2020**

1. Students will only enter the classroom when a teacher or staff member instructs them to do so. Once students are in the classroom they are expected to "check-in" at the "**license to learn**" station. This is used for roll call.
2. Students will be assigned new seats every two – three weeks (typically). Their seating assignment is mostly random and the "license to learn" will be used to assign student's new seats.

3. Students will enter the room quietly and will move directly to their assigned seats where they will take out:
  - Agenda
  - Science folder and notebook
  - Pen or Pencil
  - Any assignments that are due (including signed assessments)
  - Students will work on the jumpstart (“do now”) before Mr. Stark begins the class.
  - Additional details can be found at this [link](#)
4. Students must come to class with the proper materials each day. I will be more flexible during the first four weeks of school, but by September 14<sup>th</sup> students must be prepared.
5. In order to improve student success in the classroom, all students will be working on a merit-based system to ensure that students are completely prepared for each and every school day. This will be shared and explained to students once the initial week has settled down, but it can be [viewed here](#) for now (you will have to look at the digital copy to click on the link).

### **Materials Needed for Class:**

- Single Subject Notebook
- (1) two-pocket folder
- (100) 3” X 5” notecards
- One classroom pen and one classroom pencil (to be given to Mr. Stark)
- Two fine-tipped sharpies
- Package of colored pencils
- Pencil sharpener
- Two medium sized binder clips

Students will be organizing all of their materials using a simplistic system. We will **not** be using a binder for science class this year and will instead use a single subject notebook and a two-pocket folder to keep all materials organized throughout the year. Long-term and “connecting” notes will always be written or taped into the one-subject notebook so that they can be easily accessed throughout the school year. Other assignments will be stored, temporarily, in the two-pocket folder. At the end of each specific lesson (i.e. natural selection) all assignments that have been noted as “keepers” (marked with a ☆K) will be stapled together with a cover page designed by one of the students in the classroom and then the entire packet will be brought home to be stored there until the end of the school year. This will minimize the clutter throughout the year and will hopefully allow all students to stay organized throughout the entire school year.

### **Submitting Work Online**

Students will be using Google Classroom to submit work online. This process will be clearly explained to them during the first week of school. Overall, it is a pretty simple system and most students have already used it either in my class or in other classrooms.

### **Extra Help and Contacting Mr. Stark**

I am always happy to help students who need clarification with assignments, additional support for projects or studying, or just a quiet place to complete work. It is very difficult for me to run any extra help after school, therefore I offer extra help in the mornings at designated times. I have “office hours” on Tuesday, Wednesday, and Thursday mornings starting at 7:30 and ending at 8:10. Students planning on coming in for extra help must complete this [Google Form](#) (also found on my website) at least 12 hours before they are



planning on coming in. I ask that any students attending inform their parents/guardians and that the student comes in with *specific* material he/she wants to work on. There will be points throughout the year that I will not be able to come in for extra help, during these points the Google Form will be shut down.

Most importantly, to get a hold of me, please send an email to [chris\\_stark@wrsd.net](mailto:chris_stark@wrsd.net) I am pretty fast at responding, but please do consider that I do have a family at home and I might not get back to you until the next morning if an email is sent during the afternoon or evening hours.

### **Group Projects**

As many of you know, science is a collaborative effort between multiple people, and often, multiple practices. In this light, students will often work together on group projects and activities in the classroom. I am aware that many family's schedules are busy and I make a conscious effort in minimizing the logistical nightmare of organizing out of school projects for families by getting as much group work completed in school as possible. Although, the majority of work is completed in the classroom, there are times where work must be completed outside of class time. I am also very aware that some students work at very different levels. Some students like to take the bull by the horns and run the show, often leading the group and dictating what must be completed by which students in the group. If this is congenial and accepted by the group it can lead to great success for the entire group, but if it is not appreciated it can be detrimental to the group's overall success. Some students simply take the path of least resistance and will often go with the flow or not even bother to hop into the river, producing little to no work at all. This too can lead to problems among a group. With this said, the best way to resolve a group problem is for the entire group to stop in and see me prior to the problem getting out of hand. The majority of the time the problem can be resolved and the group will be successful from that point on, but if students allow the problem to fester the ultimate results will typically be poor and there will be resentment amongst the group members.

### **Working in the outdoor classroom**

One of the best parts of being a science teacher is that, in order to appropriately explore the natural world, we must go outside... often! Students can expect to explore things as diverse as the carrying capacity of an ecosystem, behavioral patterns of vertebrates and invertebrates, and even the genetics of nature through myriad outdoor activities. We will be going outside starting in September, up through winter (sorry for mentioning it) and into the spring. With that said, it is important that students are prepared for each visit outside. They will be forewarned when we will go outside and it is their responsibility to come prepared. This is a [short detailed document](#) of what is expected.

### **Consent Form and Final Notes**

Well... that about does it. I know it is a lot to take in all at once, but this document is always available online on my website, so please refer to it anytime you need. I like to stay in touch with parents throughout the year and one way I do this is via my group emails.. Below you will find a link to a form that I am requesting you fill out. This will include information including phone numbers, email addresses, names, credit card numbers (just joking on that one), and other pertinent information so that I can stay in touch with all parents and guardians (this is for good stuff!). Please take the time to read through the syllabus, send me an email with any questions and complete the form located below.

### **Parent Consent Form**

Thank you and I cannot wait to get this year rolling! We are going to have a ball learning about the wonderful world of science and the road ahead is paved with an exorbitant amount of knowledge and fun.

*Mr. Stark*