7th Grade Science Roundtables Format
Wednesday, 01/24/2018

Part 1: Semester Reflection
Part 2: Mini Lesson
Part 3: Experiment Presentation
Part 4: On Demand Questions

Roundtable Times:
- Block 1: 8:50am to 10:15am
- Block 2: 10:20am to 11:45am
- Block 4: 11:50am to 1:15pm
- Block 7: 2:00pm to 3:25pm

**Roundtables will be in the Chemistry Lab (room 310)**

Do I have everything???

- [ ] Semester Reflection *(Due: Friday, 1/19)*
- [ ] Mini- Lesson cards (typed and cut out or written on index cards) *(Due: Monday, 1/22)*
- [ ] Mini-Lesson visual *you do not NEED a visual, but if you’d like to create one you can*
  *you will have a whiteboard at your table on the day of Roundtables*
- [ ] Experiment Presentation and PowerPoint *(Due: Tuesday, 1/23)*
- [ ] I have looked over the Discussion Questions and prepared responses

Roundtable Grading Policy

- **WORK HABITS:** You will be given a Work Habits grade based on the amount of effort you put in during in class Roundtable preparation. You can also receive extra credit for Work Habits by dressing up for Roundtables

- **ACHIEVEMENT:** Points will be added to your overall Achievement grade for the semester based on your Roundtable performance. Expert: 5, Practitioner: 3, Apprentice: 1, Novice: 0. If you miss your presentation without an acceptable excuse, you will have 5 points taken away from your achievement grade.

- **If you are late you will NOT be able to present.**
Part 1: Semester Reflection (5 minutes)

Directions: You must write a one page reflection on what you have learned this semester using the guiding points below. This must be neatly written on a piece of loose-leaf. Be sure to use proper grammar, punctuation and writing conventions. This reflection will be part of your roundtable presentation.

**You will receive extra credit for typing the assignment**

Your reflection must include (but is NOT limited to) the following topics:

- Describe how you’ve learned to be a student scientist this semester and explain why this is important. (See the box below.)

- Describe how you’ve exhibited a Growth Mindset. (Describe what has been the most challenging part of 7th grade science for you and how you’ve overcome that challenge.) Provide evidence.

  Example: “In the beginning of the year, I struggled with unit tests. I actually failed the first unit test. Since then, I’ve learned how to study better and I’ve put in more time reviewing the study guides we’re given. This hard work has paid off because on the last test I scored an 83%!”

- Describe what the most interesting or important thing you’ve learned this semester is. Explain why it is so interesting or important. (see the list below of a list of topics we’ve learned about this semester)

Topics we’ve learned about this semester:
- Density
- Forces (buoyancy and gravity)
- Archimedes' Principle (how boats float)
- Forensics
- Paper chromatography
- Fingerprint analysis
- Topography
- Earth structure
- Plate tectonics
- Earthquakes
- Communicable diseases
- Epidemiology
- Bacteria
- Viruses
- Disease prevention
- The immune system

Ways we’ve learned to be a student scientist:
- Conducting research
- Making observations
- Solving problems using science (ex: forensics and engineering)
- Using scientific tools (ex: microscopes, graduated cylinders, etc.)
- Conducting experiments
- Collecting and analyzed data
- Using models
- Much more!!!!
Part 2: Mini-Lesson (10-12 minutes)

You will be teaching your evaluator about ONE of the following topics. You MUST make index cards to help you present and remember all the necessary information. Write your name and the card number on EACH card.

Model Index Card:

Write your name on EACH card.

Write the question or prompt.

Use the ENTIRE card. Write on the front and back. Let’s save some trees 😊

Number each card and label them (ML for Mini Lesson, EXP for experiment presentation)

Answer the question or prompt in bullet point notes. Use this as just a reminder of what you want to say. DON’T write in full sentences!

Topic A: How Boats Float

- Explain what mass and volume are.

- Explain density. Give some examples of dense objects and objects that aren’t very dense.

- Explain how you would find the density of the “key” we used for the foil boat challenge. (What scientific tools would you use and how?) **Include the formula**

- Define the two forces acting on a boat. (buoyancy and gravity) **DEMO: use spring scales to show gravity and buoyant force**

- Explain Archimedes’ Principle

- Explain why objects float and sink (include density and forces in your explanation, mention cruise ships)
**Topic B: Forensics**

- Explain what forensics is. Explain how forensics scientists use science to solve crimes.
- Explain the difference between physical and chemical properties. How are these properties used to identify unknown substances?
- Explain paper chromatography. (Include the words *mobile phase* and *stationary phase* in your explanation). Explain how to do it.
- Describe some of the ways scientists use paper chromatography
- **DEMO:** perform a chromatography test on ink samples with two solvents (water and acetone). Analyze the results.

**Topic C: Earth Science**

- Explain what earth science is
- Describe the structure of the Earth (i.e. describe the characteristics of the 4 layers)
- Explain what tectonic plates are and how they’re able to move (HINT: convection currents)
- Describe all the ways tectonic plates can move and explain what happens when the plates move in these ways
  **DEMO:** You’ll model the movement of tectonic plates with Play-Doh for the evaluator
- Explain everything you know about earthquakes (what causes them, the damage they cause, can scientists predict them, how can you prepare, should we worry about Earthquakes in NYC and why, principles of earthquake proof design)
Topic D: Epidemiology and Communicable Diseases

- Describe the FOUR types of communicable diseases. Provide examples of each.
- Describe the activity we did in class to simulate how disease spreads (sharing liquids)
  DEMO: You’ll demonstrate this activity for the evaluator
- Explain what an epidemiologist is and how we practiced being epidemiologists
- Describe how we can prevent the spread of communicable diseases
- Explain what a vaccine is and how it works.
- How can we cure/treat communicable diseases?
Part 3: Experiment Presentation (7-10 minutes)

You will be sharing and presenting your Bacteria Experiment Exhibition. There will be 3 people in your Roundtable Group. Each will present on ONE of the follow (you and your group decides who does what):

- Person 1: Background Research and Experimental Design
- Person 2: Procedures and Data Analysis
- Person 3: Conclusion, Sources of Error and Real World Significance

Use the guiding points below to prepare for your presentation. You will use your PowerPoint for this portion of the presentation. You can also create index cards if you find that helpful.

**Guiding points for Experiment Presentation:**

- **Person 1: Background Research and Experimental Design**
  - Briefly describe the background research you did and how it lead you to design your experiment
  - Explain your experimental question and hypothesis
  - Describe the experimental design (what was your I.V., D.V. constants and control. Explain what these terms mean

- **Person 2: Procedures and Data Analysis**
  - Describe the procedures. Model them for the evaluator. Make sure to explain how we tried to minimize bias
  - Explain what contamination is and what your group did to minimize contamination
  - Describe your data (show and explain your data table and graph). Explain why we examine both RAW and MEAN data.

- **Person 3: Conclusion, Sources of Error and Real World Significance**
  - Explain your conclusion (what did you group find)
  - Explain the sources of error and how they impacted the data, what can be done next time to fix this (if possible)
  - Describe the real world significance and next steps that should be taken give your results
Part 4: On Demand Questions (~5 minutes)

Your evaluator may ask you one of the following questions below. You should familiarize yourself with the questions and be prepared to answer them with good evidence and reasoning.

Possible Discussion Questions you may be asked:

- Should farm animals be fed antibiotics? How does this affect us?

- Can your cold be treated with antibiotics? Explain.

- Agree or Disagree: Detectives and epidemiologist are similar. Provide evidence.

- Why is HIV/AIDS such a debilitating disease? (debilitating means “a disease or condition that makes someone very weak and sick”)

- Describe the THREE kinds of models scientists use. What are the benefits of using models? What are the limitations of using models?

- Is it better for scientists to invest time in money in trying to PREDICT earthquakes or helping people PREPARE?

- Is this a valid statement: “Bacteria are bad.” Provide evidence.

- Explain why density is a “defining characteristic.”

- In 2014, the United States experienced a record number of measles cases, with 667 cases from 27 states reported to CDC’s National Center for Immunization and Respiratory Diseases (NCIRD). Explain why this could have been prevented.