

Report Cards Already?:

As I explained during our Standards-Based Science Evening two weeks ago, I provide report cards at the end of each unit. We have just completed **Acting Like A Scientist**, our introductory unit. Science Process Skills (SPS)--**doing** science--was the focus of this unit. Here are goals of this SPS standard (from the Next Generation Science Standards--NGSS).

Science Process Skills & Practices:

Students can recognize scientifically testable questions and make plausible predictions. Students can carry out safe investigations, control variables, recognize controls, measure accurately, and record data in a table that they can design themselves. Students can analyze data, graph results, draw conclusions based on evidence, and communicate these results. (All above based on Appendix H of NGSS--Nature of Science.)

Much of our work during Acting Like A Scientist revolved around predicting, using data tables, graphing, and stating conclusions based on data. Here is a look at tasks you will see in Aspen. Tasks are evaluated on a scale from 1-3. (Please see the Aurora Science Class Overview on the Parent Info page of my website. (www.stithsonianscience.com))

- 1: Learner demonstrates little or no understanding of the concept(s).
- 2: Learner demonstrates **some** understanding, but not consistently, and/or student relies on teacher for guidance.
- 3: Learner shows complete, consistent, and independent understanding.

Self Direction:

Most scores in Aspen at this point are in the **SD**--Self Direction-category. Although non-academic, these skills are as important to students' future success as any academic standards. SD scores are the **only ones that cannot be redone**. Instead of dwelling on past missteps, students should focus on improving these skills. Here is an explanation of SD grades you will see in Aspen:

SD WK 1-3, SD WK 4: These weekly scores describe how well students did their jobs in class (arrived on time with proper materials, followed directions, completed tasks on time, took advantage of redo opportunities). There will be a SD WK “X” score most weeks all year long.

SPS Soc SD: This score reflects whether or not students completed the SPS Socrative Assessment on time and if they signed in properly.

Graph SD: Their line graph was due this past week. Did students complete it on time and follow directions in terms of what data to graph?

Science Process Skills:

These, and all academic items, can be redone. Here is an explanation of the two SPS grades you will see in Aspen:

Cricket Graph: Each student graphed data for How Temperature Affects Number of Cricket Chirps.

SPS Socrative: Each student completed the SPS Socrative Assessment. To access this students go to the Acting Like A Scientist page of my website and click on the button for the Socrative Assessment (after writing down the room code below the button!). As students answer each question they get immediate feedback about why the answer is the answer. Scoring: 9-10 = 3; 6-8 = 2; 0-5 = 1. Students may wait 24 hours and retake the assessment if not satisfied at first.

Ecology:

This is our next unit. Here is the outline of the first half of this unit:

I. Ecosystem Factors

- A. **Ecosystem:** Community of living things interacting with each other and physical environment
- B. **Biotic Factors:** All organisms (living things) in ecosystem (plants, animals, fungi, microorganisms)
- C. **Abiotic Factors:** Non-living things affecting ecosystem (sunlight, temperature, wind, water)

II. Levels of organization of organisms

- A. **Individual:** A specific living organism.
- B. **Population:** Total number of organisms of species living in an area
- C. **Community:** Total number of all organisms in area
- D. **Ecosystem:** All interactions (biotic and abiotic) within biome.
- E. **Biome:** Large regions of earth. Weather and terrain of biomes determine which organisms live there.
- F. **Biosphere:** Collections of all ecosystems on earth

III. Factors that affect population sizes

- A. **Carrying capacity:** Total number of organisms a habitat can support (can be a specific species or sum of all species)
- B. **Limiting factors:** Things that keep populations from growing larger
 - 1. Density-independent (usually physical, not biological)
 - a. temperature
 - b. natural disasters (floods, wildfires)
 - c. pollution
 - 2. Density-dependent
 - a. predators
 - b. competition
 - c. disease

At the end of this part of the unit, each student must **produce evidence** they understand key goals. (I will be giving these goals well before the end of the unit.) This product could take the form of Google Slides, a video, a labeled diagram, or a written narration. The product will be evaluated as a 1, 2 or 3 and **each student will also be interviewed individually** to make sure he or she truly understands what is shown in the product. I will set up a spreadsheet, and students will sign up for a ten-minute slot during regular class time or PM Get Set time. It will take several days to complete. The rest of the class will have extension activities to work on during interview days.

Questions? Email me at dstith@londonderry.org