

Learner-Paced Class:

How is a learner-paced classroom different from a traditional one?

- ❖ Learners ***move at own pace*** [although there is still a maximum number of days per unit].
- ❖ Learners ***create their own products*** to demonstrate their understanding of a unit's Fundamental Goals instead of taking paper-and-pencil tests.
- ❖ Often, learners have the ***autonomy*** to decide what type of product to create to best match their learning style. [Products may include a written explanation, a labeled diagram or photograph, a model, a demonstration, a video...]
- ❖ Most learners will have ***no formal homework*** to complete, since they will create most of their products during class.
- ❖ Learners are ***interviewed individually*** to show their depth of understanding.
- ❖ If a learner struggles with a concept, this will be discovered promptly, and we can offer ***immediate guidance***.
- ❖ Learners have ***unlimited opportunities*** to show their understanding of concepts—even if it's after we have “finished” the unit.
- ❖ If learners are able to demonstrate their understanding of all goals before the end of a unit, they have the opportunity to ***explore more advanced topics***.

Welcome to the Monsoon Learner-Paced Science Class! It's a hands-on, activity-based class, but all students do not conduct the same activities nor move at the same pace. An important consideration is that ***students are much more active learners*** in a learner-paced classroom than in a traditional one.

Structure of Units:

[Non-content units] We begin the year with a unit called “Acting Like A Scientist”. Science process skills and practices are the focus of this unit, rather than specific science content.

We return to Acting Like A Scientist midway through, and at the end of the year when we conduct “student-designed investigations”. I arrange groups for non-content units.

[Content units] All students begin with Activity #1 during the content units. There are questions to investigate and to answer in their science notebooks. They may work alone or with partners. When they have completed the activity, they sign up on an interview sheet for that activity. If the teacher and all assistants are helping other students, they go on to the next activity. As soon as the teacher or assistants are able, the learner is interviewed. Learner understanding is evaluated during interviews, and scored in the following way.

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

If the learner lacks understanding of a concept, the teacher or assistant **guides** the student to a better level of understanding. Memorization is not what we are after, and often **students must put significant effort into truly understanding ideas**. Self-reflection is part of the interview process and learners are soon able to correctly identify their understanding as a 1, 2, or 3.

When a student completes all required activities, he or she begins working on the product. **[Note:** Acting Like A Scientist requires graphing, but no other formal product.] Each unit product requires students to demonstrate understanding of only a few (3-4) key concepts. These Product Goals are given at the beginning of the unit. Although learners may complete a product with one or two other students, **each learner is interviewed separately** on the product. Occasionally, one person in a group does far more work than another; this shows up during interviews!

Units of Study (in order):

- I. Acting Like a Scientist (group skills, observation, data collection, graphing, analysis)
- II. Properties of Matter
- III. Cells and Genetics
- IV. Properties of Energy
- V. Magnetism
- VI. Electricity
- VII. Forces and Motion
- VIII. Sound & Light
- IX. Acting... (Review skills and key ideas)

What if my child needs help in science?:

Due to the structure of a Learner-Paced Science Class, most “extra help” occurs *in class* when it is needed! At least once or twice a week I offer extra help during Storm Time. This allows students to get the additional help they need without needing before or after school transportation. Many mornings I can also meet with learners, but they must check with me ahead of time because I have before-school clubs, bus duty, and department meetings.

Does my child ever need to be working on science at home?:

It's true there's little formal (i.e. materials to be turned in) homework in science. Even so, all students are *encouraged to spend time at home each week* strengthening their understanding of concepts and deepening their appreciation for science in the “real world”. How much time? Hard to give a definite answer—all students are different and some weeks are naturally busier than others. I would say 15-20 minutes 2-3 times per week is enough to be useful without being overwhelming. How should they spend this time exactly? **See my website!**

Website Resource:

Here is my personal website: www.stithsonianscience.com Many parents and students find it to be an invaluable resource. How should learners use it?

The navigation section can be found at the top right of the home page. The left column lists our units. Here's how each unit page is set up:

Top section—left column:

- Unit outline.
- “I can” statements outline,
- Unit's product goals.

[I provide hardcopies of these to all students who want them.] The unit outline shows the progression of ideas in the unit. Think of it as an answer key to the “I can statements” outline. The product goals specify the concepts learners are expected to learn and demonstrate by the end of the unit in their products.

Top section—right column:

- Quizlet electronic flashcards
- Socrative unit quiz
- Button that links to the activities in Google Drive.

Early in the unit students should go to Quizlet and use “flashcards” and play “match”. Later, learners should complete “Learn Mode” on Quizlet. Near the end of each unit students must take the Socrative Quiz. Socrative provides learners with **immediate feedback** on answers, and more importantly, **the reason for the answers**. Although students do not all work at the same pace, there are a maximum number of class days set aside for each unit. For some students who need more time than others, the only alternative is to **do a few activities per week at home**.

Bottom section:

- Other Cool Resources.

Here are fascinating videos or simulations related to the unit. Seeing how concepts are part of “everyday life” is extremely useful for **all** learners. Take a look! **Note:** Weaker students will spend more time in the first two sections; stronger students will spend more time watching Other Cool Resources.

Grading Categories:

There are **eight** grading categories in science, seven of which are academic. The other, **POP** (Perseverance, Ownership, and Practice), consists of vital skills for success in school and life. These include keeping organized notes, diligently working on the task at hand, handling materials properly, following directions, and taking advantage of redo opportunities. Each day, students earn 2 points for demonstrating proper POP skills.

Here are the seven **academic** grading categories:

- Process Skills & Practices **before** Investigations
- Process Skills & Practices **during** Investigations

- Process Skills & Practices **after** Investigations
- Properties of Matter
- Properties of Energy
- Forces & Interactions
- Cells, Organisms, and Inheritance.

A primary goal of sixth grade science is for learners to master science process skills. That is why 3 of the 7 academic categories emphasize **doing** science.

Standards-Based Grading:

I am pleased to report that I am one of two teachers at LMS this year to be piloting standards-based grading. (This was the method used in all Londonderry elementary schools when your learner was in 4th and 5th grade.)

All assessments will be listed as a 1, 2, 3, (or in some cases, a 4). [Please see Structure of Units for a description of each number.] How well a student masters Cells & Genetics has little relevance for how he or she performs in other units. For that reason, **scores are not averaged among categories!** Instead, in Aspen, you will see a list of scores under each category heading. Even within a given categories, scores are not averaged in a typical way. More recent work is weighted more heavily than earlier work. In other words, if a student makes numerous mistakes on a line graph in September, does better in January, and shows excellent ability in June, the poor work in September will have a minimal effect on the student's graphing score.

Engineering Assignments and Family Science:

Twice per trimester I assign **Engineering Assignments**. These typically involve the construction of improbable-acting contraptions I demonstrate in class. To see the contraption outside of class, there is a video of it on the "Student-Created Work" page of my website. Engineering Assignments count as POP grades and scored as follows:

- 1: No attempt shared.
- 2: Attempt shared, but only minimal time and thought displayed, or turned in late.
- 3: Attempt shared on time that shows quality time and thought (It need not work!).

Family science projects are offered once per trimester. As the name implies, all members of the family are encouraged to take part. Although family science projects are not required, I see no reason why students should not attempt them regularly throughout the year. These projects provide students with what they need most to become stronger science students—**experience!** I show family science project videos in class, but these can also be viewed on the “Family Science” page of my website.

Redos:

Redos should be the rule not the exception! One should expect that only trivial ideas (state capitals, vocabulary, arithmetic facts) be mastered on the first try. Work in all categories, **except POP**, can be redone to demonstrate deeper understandings. When I interview a learner I explain exactly what is lacking (if it is not a “3”). Students have the opportunity to improve their products and re-interview. They can do so as many times as needed.

Note: Once we move on to a new unit, students will have to re-interview outside of class time. (See **What if my child needs help in science?** for possible times.)

Parent Info Page:

I periodically write up information especially useful for parents. This can be found on the “**Parent Info**” page. I don’t have room here to explain every other tab on my website, but am always happy to discuss this with interested parents!

Come Visit!

We work hard in class, but have a lot of fun learning. Interested parents are welcome to sit in on classes. We conduct a lot of fascinating hands-on investigations, and parents are encouraged to visit and match wits with students!

If there are any questions, please feel free to email me at dstith@londonderry.org.