



Watch It/Write It

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Description:

Watch It/Write It requires a team of students to observe some phenomena presented by the event supervisor and then describe the phenomena and their ideas about the phenomena using words, drawings, diagrams, labels, etc. Watch It/Write It emphasizes observation, communication and developing and using models.

Students should be prepared to observe carefully and develop a written model to represent their observations.

Number of Students: Up to 2

Approximate Time: 30 minutes

Materials:

Paper will be provided.

Students must bring sharpened pencils or pens and may bring colored pencils or pens.

Preparation:

The Watch It/Write It challenge is designed to require students to observe carefully and describe their observations in words, pictures, diagrams, etc. The written description presents a model of the phenomena as well as the students' ideas about what is going on and why. Students' preparation might include making a variety of observations of natural or man-made phenomena and describing the ideas in writing.

Examples of phenomena might include:

- Observe the operation of toys or simple science experiments.
- Observe phenomena multiple times to check for missed observations.
- Practice describing the steps of a process in words, diagrams, pictures, etc.
- Practice ways to represent forces or unseen parts of a phenomena with words, symbols, etc.
- Practice explaining ideas about observations and why some phenomena is happening.

Scoring:

Scoring is based on the ability of the students to observe carefully and represent their observations in a written model that describes their observations clearly and describes their ideas about the phenomena, including evidence they have for their ideas.

Preparation Tips: Watch It/Write It

Background Information

A significant focus of the Next Generation Science Standards (NGSS) indicates that science education should be more authentic to the way science and engineering are practiced in the real world – intentionally including Science and Engineering Practices, Disciplinary Core Ideas, and Cross-Cutting Practices.

Two significant Science and Engineering Practices for upper elementary students include developing and using models and supporting ideas/arguments with evidence. A quick look at a few of the Performance Expectations for upper elementary grades reveals frequent use of language like, “Develop and/or use models to describe and/or predict phenomena,” or “Develop a diagram to describe or explain a process.” Models need not be 3-D constructions, but are often drawings, labeled diagrams, sequence frames (like cartoons) that show relationship or change over time, etc.

The event Watch It/Write It is designed to provide students with an opportunity to engage in these fundamental Science and Engineering Practices.

How to Prepare

The phenomena students’ will observe will not be shared prior to the Science Olympiad. The event includes the ability of the students to react to a potentially new experience with careful observations, reasonable ideas supported by evidence, and clear written communication in words, diagrams, drawings, etc.

Provide the students with things to observe and describe. Provide practice writing and drawing to describe the observations and ideas. Resources include science activity books from the library that include hands-on things to do and observe. Here are some examples to illustrate using phenomena to prepare for this event.

Iron Filings and a “Mystery” Iron Rod

The phenomena to observe might be sprinkling iron filings on a piece of glass and then placing a metal rod and or disk (magnets) under the glass near the iron filings in different orientations and arrangements. Students then represent what they have observed and discuss their ideas about what might be going on. The best work will clearly and reasonably summarize the observations and include an explanation of what the students think might be going on.

Soap Boats

Another example would be to take a shallow tray of water, like a pie pan or cookie sheet. Cut out an oval- or boat-shaped disk of cardstock with a slit or “v” shape cut into the back end. Cut a tiny sliver of soap and edge it into the slit or “v” shape. Place the boat into the water and observe what happens. Try different types of soap. Try liquid soap or dishwashing liquid. Does the type of soap change the phenomena? Does the phenomenon stop working after a period of time? Describe the observations and ideas with words, diagrams, drawings, cartoon sequences, etc. The best work will include

clear communication, employ the models to explain ideas, and include some evidence or rationale for the ideas. Note that the ideas need not be correct. First ideas are often naive or lack sophistication. A keystone value of representing observations and ideas with models is that they can be revised as new experience is encountered.

Related NGSS Links

Science and Engineering Practices

<https://www.nextgenscience.org/sites/default/files/resource/files/Appendix%20F%20%20Science%20and%20Engineering%20Practices%20in%20the%20NGSS%20-%20FINAL%20060513.pdf>

California NGSS

<https://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp>

Conceptual Shifts

<https://www.nextgenscience.org/sites/default/files/resource/files/Appendix%20A%20-%204.11.13%20Conceptual%20Shifts%20in%20the%20Next%20Generation%20Science%20Standards.pdf>