



H2Olympics

This lesson is correlated to Grades 3-8 and recommended for upper elementary and middle school aged children. The lesson is correlated as written in the *Project WET Curriculum and Activity Guide 2.0*. Correlations are meant to show how activities support a standard, performance expectation and/or three-dimensional learning. NGSS correlations are provided in detail in a separate document to demonstrate how the content of this activity provides a three-dimensional learning experience. Common Core State Standards correlations for grade spans assume that teachers will be familiar with the standards for their respective grade level(s) and be able to apply them judiciously.

Summary: Students compete in a Water Olympics to investigate two properties of water, adhesion and cohesion.

Common Core: *ELA:* RI.3-4.3; RST.6-8.3; RST.6-8.9; *Math:* 3.MD.4

NGSS: n/a

Although this activity—as it was written—does not correlate to any NGSS, the idea of cohesion and adhesion of water is key to understanding some life science information, such as how trees can get water high up in the trunk and how soils hold on to water. It is too specific and not a broad enough concept to be addressed in NGSS. This lesson is still a foundation that is important in understanding phenomena, especially in plants and trees.

Instructions for Educators

1. Distribute the PDF lesson of H2Olympics to students.
2. Have them complete the lesson as instructed.
3. Ask students to turn in the completed event results to you.
4. Compare results with the class, if possible. Share the tops winners of each event. Ask student which event was their favorite and why.
5. *Option:* If students are able to access youtube, ask them to watch the video about surface tension of water in space: <https://www.youtube.com/watch?v=o8TssbmY-GM>
6. Keep a log for a few days of where Discuss where in nature students see the properties of cohesion and adhesion at work. You could have them keep a log of observations in their house and neighborhood over a few days.

7. If students can access the internet, follow the activity with Soap Science from DiscoverWater.org (<https://www.discoverwater.org/soap-and-water-science/>) for a better understanding of how soap interacts with water to clean our hands.
8. See answer key on the following pages for this lesson.

Pre-Activity Questions

1. Do you know the definitions of cohesion and adhesion? Write your best guess below. If you're not sure, that's ok! You will learn about it in this lesson.

Cohesion:

The attraction of water molecules to each other as a result of hydrogen bonding.

Adhesion:

The attraction of water molecules to other materials as a result of hydrogen bonding.

2. Have you ever seen an insect walk on water? How are they able to do this? Take your best guess below.

Surface Tension



Procedure

Answers will vary by event results throughout the activity.

In space, without gravity, water behaves differently. Without gravity it attracts to itself or to objects near it more easily. It forms balls of water that "stick" together.

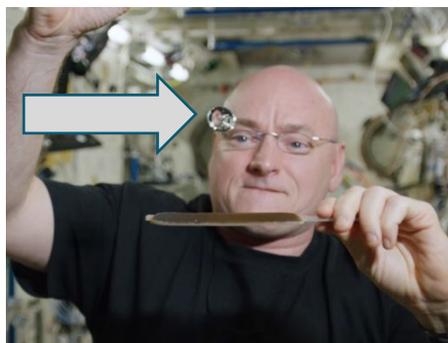
Quiz

1. What property causes water to form balls bond to itself in space? Circle the correct answer.

Adhesion

Surface Tension

Cohesion



2. Which picture shows the properties of adhesion? Circle the correct picture.

