

WEEKDAY WONDERS



Content developed by the
Tennessee Aquarium
Education Department



TENNESSEE
AQUARIUM



Mad Scientists: Day 2

Science is an important part of our lives, even when we do not realize it. This week, young scientists will have a chance to explore some of the science topics that we encounter around us every day. Whether it is plants or weather, water or colors, this week young scientists have a chance to find out more about the science around us.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the [Introduction to Weekday Wonders](#).



Question of the Day

How do boats float on the water?



Daily Nature Journal

Have your young scientist complete a daily nature journal using the information in the [Guide to Nature Journaling](#). Forming the habit of observing nature every day helps people increase their connections to the outside world.



Sink or Float

Have your young scientist gather several items from around the house. These should be items that can get wet. Your scientist should gather some items that s/he thinks will sink and some s/he thinks will float in water. Also have your scientist gather at least 3 items that s/he is not sure whether they will sink or float.

Help your scientist get a large bowl container of water. The water should be deep enough for your scientist to see if the items are sinking or floating.

Have your scientist list each item in his or her journal and then write a prediction of whether it will sink or float. Then, ask your scientist to test each item individually. S/he should record the results for each item next to the prediction.

Have your scientist share which items sank and which floated and discuss why they think each item behaved the way it did. Have him or her compare what is similar about all the items that sank and those that floated.



How Do Boats Float on the Water?

Ask your scientist to start a new page in his or her journal and write the Question of the Day, “How do boats float on the water?” at the top of the page. Underneath the question, have your scientist write or draw any ideas that s/he already has about how to answer the question.



Float the Egg

Gather a glass jar, water, salt, a spoon, and a raw egg or cherry tomato (or any other relatively light food that sinks in water). Ask your scientist what s/he thinks will happen when you put the egg into the cup of water. Will it sink or float?

Have your scientist carefully put the egg in the water. It will most likely sink at the point. Have your scientist remove the egg and gently dry it off.

Now ask your scientist to stir in a spoonful or two of salt. Once it has dissolved, have him or her try adding the egg in again. It may float this time. If it does not, keep having your scientist remove the egg, add another spoonful of salt, and adding the egg again. Soon, the egg should float.

Ask your scientist to explain what happened and why the results were different. If s/he struggles, discuss that at first, the egg was heavier, or denser, than the water. It sank to the bottom. Once the salt is in the water, it makes the water heavier, or denser, so it eventually can “hold up” the egg.

To extend this activity, have your scientist try it again with sugar or by testing different objects. Older scientists may want to measure the amount of water and the amount of salt needed to make the egg float.



How Do Boats Float on the Water? Part II

Once your scientist is done investigating, have him or her add any new information to the page with the Question of the Day on it. See if s/he feels like s/he could explain why a boat floats yet.



Whatever Floats Your Boat

Have your scientist go on a walk around outside and collect items that s/he thinks would make a good boat. Tell him or her to collect a variety of items to have choices, in case the boat does not float as expected.

When your scientist returns, have him or her create a boat out of the materials. You may wish to offer glue, flour and water paste to act as glue, string, and/or tape.

Have your scientist try out the boat in a tub of water. Once s/he feels like the boat is ready, remind your scientist that boats often carry cargo or people. Give your scientist an item or two that will serve as the cargo. A stack of coins can work well, but feel free to use whatever is convenient.



Putting on the Airs

Gather two containers with lids that are the same size and shape. Give your scientist both containers and ask him or her to make one sink and one float. The only condition is that the lid must be on each container at the time of the test.

Your scientist will likely know, or figure out, that if there is air in one container and water or something else heavy in the other container, s/he will achieve the goal.

Have your scientist talk about the differences. To extend this activity, you might have your scientist see how much water and air are needed to keep the container floating or to cause it to sink. Challenge him or her to see if s/he can add just the right amount of water and air to keep the container exactly in the middle of the water without sinking to the bottom or floating to the top.

Once your scientist has finished the activity, have him or her redesign the boat to see if there is a better way to ensure it will float even with heavy cargo.



How Do Boats Float on the Water? Part III

Have your scientist add to the information in his or her journal to explain how boats are able to float on water. S/he can write or draw the information, but have your scientist try to use information from each of the activities to explain it fully, including information about materials, density, and the role of air.