

Work Sample Suggestion for Tuning Fork Splash

This activity is completed as a group and then recorded by individual students.

Demonstrate how to complete the activity: fill a plastic cup to one-inch from the top. Place it in the center of a large (1 meter square or more) sheet of paper. Use a permanent pen to trace the bottom of the cup on the paper. Strike a tuning fork on a rubber stopper or block of wood causing the tuning fork to vibrate. Quickly place the very ends of the tuning fork on the surface of the water.



The water splashes out of the cup creating spots on the paper. With student help locate the spot farthest from the cup. A larger sheet of paper may be needed, have extra ready. Circle the dot with a permanent pen and write the date next to the circle.

Repeat the activity the next day after the paper has dried. Repeat a third time and average the distance from the cup to the three farthest circles.

Explain that the vibration of the tuning fork causes the water to splash out of the cup.

Use student suggestions to change the activity in one way. Repeat three times to find an average and compare results to the original activity.

For example, students may choose:

- a different person strikes the tuning fork
- strike the tuning fork on a different object or with different force
- use a different cup
- use a different tuning fork
- use more or less water

Following this is an example of a write-up for this activity. I tried to fit it on one page to make it easier to present in parts to students or to use as a teacher reference.

Tuning Fork Splash

FORM

If I hit a tuning fork on a small block of wood, it vibrates. If I put the end of the tuning fork into a cup of water filled to 2 cm from the top, the water splashes out of the cup. I put the cup on a big sheet of paper. When the water splashed, it made marks on the paper. The farthest the water splashed was 62 cm from the cup. The vibrations of the tuning fork cause the water to splash out of the cup.

What would happen if I used a smaller cup?

I think we would get about the same results because the cup would still have water to 2 cm from the top.

DESIGN

I am going to:

1. Fill a 16 ounce cup to 2 cm from the top.
2. Strike the tuning fork on a piece of wood and touch the ends of the tuning fork to the water.
3. Find the farthest splash from the cup, circle it with a permanent pen and date it.
4. Let the paper dry and do 1, 2, 3 again two more times.
5. Use a 8 ounce cup filled to 2 cm from the top and repeat 1, 2, 3, and 4.

COLLECT

Trial #1: 60 cm
Trial #2: 56 cm
Trial #3: 66 cm
Average: 62 cm

Trial #1: 62 cm
Trial #2: 64 cm
Trial #3: 60 cm
Average: 62 cm

ANALYZE

We got the results we expected, the average was 62 cm both times. We did notice that the water splashed more and got the paper wetter when we used the shorter cup.

