

Year 9 Science: 1-5 March 2021

Choose 1 activity from the list below each day you have Science this week. Complete the task and then take photo's of your work.

	Choice One	Choice Two	Choice Three	Choice Four	Choice Five
Science Question:	Does different styles of music affect a person's reaction time?	Does the shape of an ice cube affect the time it takes to melt?	Does the size of a parachute affect the time it takes for it to fall?	Can you make a coin disappear with only water and a glass?	Does the type of plastic a bag is made from affect its properties?
What to do:	<p>Search and download a free reaction time App from the App Store on your phone or find a plastic ruler and use the link below for instructions.</p> <p>Find 5 pieces of music that are different from each other. You could choose heavy metal, classical, pop, opera, rap, drum and base or anything else!</p> <p>Test the people in you house to see if their reaction time is different depending on what music they are listening to. Make sure you test each person at least 10 times and make an average for each.</p>	<p>Collect 5 different shaped containers that can all hold water and can be placed in the freezer. Try to get a mix of tall, flat, wide, deep and shallow.</p> <p>Measure out the same small about of water into each container (use a measuring cup if you can – it does not matter how much goes in just that it is the same in each container).</p> <p>Leave the container and water in the freezer overnight to freeze.</p> <p>The next day take the ice out of the containers and place them outside in the sun. Time how long it takes for each to melt.</p>	<p>Collect old paper, newspaper or junk mail that you can cut up. Find some string, wool or thread. Cut out three parachutes of different sizes and attach the string and something lightweight, like a small stone, pen or rubber.</p> <p>Check out the link on how to construct the parachute.</p> <p>Drop each parachute from a high (but safe!) place like the top of the steps or a chair.</p> <p>Time how long it takes for the parachute to reach the ground.</p> <p>Repeat each parachute at least 10 times and make an average for each.</p>	<p>Get a coin and a clear, see-through glass full of water.</p> <p>Place the coin underneath the full glass of water.</p> <p>Look at the coin from the side of the glass.</p>	<p>Find at least three different types of plastic bags you are allowed to poke holes in.</p> <p>Find a round (not hexagonal) pencil and sharpen it so there is a sharp point.</p> <p>Pour some water into the bags and tie or seal shut.</p> <p>Gently poke the pencil through the bag, in one side and out the other (but don't pull the pencil out – keep it stuck in the bag).</p> <p>Repeat for the other bags. If you have more pencils, you can do the same with them.</p>
Online links:	How to Test your Reaction Time - Science for Kids (science-sparks.com)	How to Calculate Cube Weight (sciencing.com)	Design a Parachute - Activity - TeachEngineering	Disappearing Money Science Experiment (stevespanglerscience.com)	The Leakproof Bag Science Experiment (stevespanglerscience.com)
Questions to answer (write the answers on paper):	<ol style="list-style-type: none"> How did you calculate the average reaction time for each person for each music? Was there any difference in reaction time between the pieces of music? Which music, on average, had the slowest reaction time? Which music, on average, had the fastest reaction time? Why do you think there was a difference or no difference? 	<p>Before you start:</p> <ol style="list-style-type: none"> Draw each shape container (you could trace around them). Guess and write down which containers ice will melt the fastest. How will you time how long it takes for the ice to melt? How could you use time-lapse on a phone to make the measuring easier? <p>The next day:</p> <ol style="list-style-type: none"> Which shape melted the fastest? Explain why. Which shape melted the slowest? Explain why. 	<ol style="list-style-type: none"> How did you calculate the average time to reach the ground for each parachute? Was there any difference in the drop times? Which parachute dropped the slowest? Explain why. Which parachute dropped the fastest? Explain why. Why do you think there was a difference or no difference? Research and describe the size and shape of real parachutes. 	<ol style="list-style-type: none"> Describe what happened when you looked at the coin from the side of the glass. Explain why this happens. What happens when you look at the coin from above the glass? Explain why this happens. Try with other objects and other types of containers. Try flat dishes, tall and short glasses, plastic containers. Write about any similarities or differences. 	<ol style="list-style-type: none"> Describe what happened for each of the different plastic bags. Which bags leaked? Why do you think these bags leaked? Which bags did not leak? Why do you think these bags did not leak? Why did all the bags leak when the pencils were pulled out?

Finished? You could also try these: [How to Step Through an Index Card | Science Experiment \(stevespanglerscience.com\)](http://stevespanglerscience.com) and [Coin Tower | Science Experiment \(stevespanglerscience.com\)](http://stevespanglerscience.com) and [Human Table Trick | Science Experiment \(stevespanglerscience.com\)](http://stevespanglerscience.com) and [Floating Water | Science Experiment \(stevespanglerscience.com\)](http://stevespanglerscience.com)