

Deep Dive		Kindergarten Earth & Space	
<b>Lesson Plan</b>		<b>Safety Notes</b>	Use extra caution when pouring boiling water
<b>Description</b> In this lesson, we will get a little messy and dive into the earth. This lesson will engage your student in a hands-on and creative way to explore the earth's crust – all the way down to its very core! Engaging creativity while tackling big topics, join us for a deep dive!			
<b>Materials</b> <ul style="list-style-type: none"> <li>• 3 cups of white flour</li> <li>• 4 tsp of crème of tartar</li> <li>• 1 tbsp of cocoa powder</li> <li>• 4 TBSP cooking oil</li> <li>• Large mixing bowl (able to withstand heat)</li> <li>• Dental floss</li> <li>• Wooden spoon</li> <li>• 1 cup of salt</li> <li>• 2 cups of boiling water</li> <li>• Red, yellow and blue food colouring</li> <li>• Rolling pin</li> </ul>			
<b>Science Background</b> Have you ever wondered what the earth is made of? Or what is underneath even the deepest part of the ocean? In this lesson, we will explore the various layers of the earth. <div data-bbox="604 1346 1003 1745" data-label="Image"> </div>			

The earth is made up of several layers. The center of the earth has a solid core that we refer to as the *inner core*. This solid metal ball is extremely hot at a temperature of 5,400° Celsius. That's almost as hot as the surface of the sun!

The next layer consists of a very hot liquid layer called the *outer core*. This layer is responsible for the earth's magnetic field. Following we have the *mantle*, the earth's thickest layer which is made of a semi-solid. Lastly the *crust* is made up of cooled rocks, our oceans and continents!

### Activity Procedure

1. Begin by boiling your water. While you are waiting for the water to boil, combine the flour, crème of tartar, and salt in a mixing bowl.
2. When the water has boiled, add it to your dry ingredients and add the cooking oil. Use the wooden spoon to mix. You will want to mix it until it is smooth. Once the mixture is cooled enough you can mix with your hands. This will make a soft dough.
3. Take a squash ball size of dough and roll it into a ball. Next, you will want a tennis ball sized amount then a baseball.
4. Roll another baseball size then two more tennis ball sized amounts. Your dough should resemble this:



5. Make an indent in each ball



6. Add your dye, the first being red, orange, then yellow. Followed by brown dyed with cocoa powder, blue, then green. Your dough should look like this:



7. Using your palm, flatten the orange ball and place the red in the middle. Wrap the orange around the red and roll it on the counter to smooth it out.





8. You will repeat this step by flattening the yellow with your palm, wrapping the orange and rolling it to smooth out.
9. For the brown layer you will want to use a rolling pin to make it very thin. Wrap it around the yellow and smooth it out.



10. Once your brown layer is complete use the rolling pin to roll out bits of blue and green and decorate your earth in any way you like! Until your brown layer is completely covered.



11. Place your earth on the counter and use your dental floss to slice through the middle. Keep a steady pressure and it will slice smooth.



12. There you have it! Your earth should look like this:



### Debrief

What we've made here is a model of our planet's interior. There are a lot of different ways to model the earth's inside. One of them uses a creature found in nature, the turtle!

The turtle's shell isn't smooth, its surface is made up of a lot of large plates. At the edges of each plate there are ridges, and valleys where these plates "scutes" touch. Our planet is much like this! Only the plates are the size of continents, and the ridges are mountain ranges like the Rockies!

The turtle shell model is a lot like the one we made, as the shells are made up of many layers! The back of a turtle is a very good model for how our earth is made, which is why many First Nations people have used it to explain how the earth was made, for thousands of years!

## Coloured to the Core!

Can you label all the circles? Where would you place the **Inner Core**, **Outer Core**, **Mantle** and **Crust**? For extra fun feel free to colour them in! Red, Orange, Yellow and Brown.





## Coloured to the Core! (Answer Key)

