Building in 3d allows students to acquire the perception of space and form. In this lesson, students learn about dinosaurs and where their names come from. They also learn how to divide the whole into its parts, how to create texture, and names of some basic forms and shapes.

OBJECTIVE

This lesson has a video tutorial component: https://www.youtube.com/watch?v=egPr4f3Imo0&t=231s

Plasticine is the material used in the tutorial. It does not harden and can be reworked into different projects. It is easy to soften plasticine with a hair dryer or by placing it in the sun for 15 min. The project can be made using a variety of materials including the homemade play dough.

Playdough recipe

Ingredients:
1 cup flour · 2 tsp cream of tartar · 1/2 cup salt · 1 tbsp cooking oil or vegetable oil · 1 cup water · food coloring

Instructions:
1. In a large bowl, combine all of your dry ingredients (flour, salt, cream of tartar) and mix well.
2. Mix food coloring with your water first. Then add the vegetable oil and water with food coloring to a large pot. Mix together.
3. Add the dry ingredients to your pot and mix well.
4. Cook over low to medium heat until the dough starts to form and becomes dry.
5. Once it starts to form a ball together and looks fully cooked, take off the heat. Let the dough cool first before touching.
6. Once cool, knead the dough for 5 minutes to make the dough soft.

Storage: First wrap your playdough in saran wrap then store in an air-tight container.

ADAPTATIONS

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**VOCABULARY**

Paleontology is the name of the science that studies dinosaurs.

**Quadruped** is a creature that walks on its four legs.

**Bipedal** is a creature that stands upright on its two legs.

**Herbivore** means vegetarian.

**Carnivore** means meat eater.

**Brontosaurus** is the largest quadruped dinosaur that lived 150 million years ago. Translated from Greek, Brontosaurus means Thunder Lizard. It is a herbivore.

**Stegosaurus** is also a quadruped and a herbivore. ‘Stegos’ means ‘roof’ or ‘covering’ in Greek. So, Stegosaurus is a lizard with plates on its back that resemble roof tiles.

**Triceratops** literally means ‘three-horned-face’ in Greek. It uses its horns to defend itself. It is also a quadruped and a herbivore.

**Tyrannosaurus or T-Rex** is a dinosaur that lived around 60 million years ago. In Greek, its name stands for ‘tyrant lizard.’ It is a carnivore and a very aggressive predator. T-Rex is a bipedal dinosaur - it walks on its back legs and its arms are small.

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**MATERIALS**

- yellow plasticine 2oz; green plasticine 2 oz; blue plasticine 0.5 oz; orange plasticine 0.5 oz;
- plastic knife; bbq skewer; ziploc bag

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**QUADRUPEDS**

- Stegosaurus
- Brontosaurus
- Triceratops

**BIPEDAL**

- T-Rex

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**STEP 1**
Form the block of clay into a cylinder. With the plastic knife draw three lines on the 2oz piece of clay, dividing it into three equal parts. Cut off one part and set it aside. With the knife, split the bigger piece of clay one third down lengthwise. Then pull two sides apart. You should end up with the letter 'Y'.

![Image of a green Y-shaped clay piece](image1)

**STEP 2**
Pinch and bend both ends of the letter 'Y' to form feet. Press the wooden stick into each foot several times to create claws.

![Image of a green dinosaur with feet](image2)

**STEP 3**
Take the remaining piece of clay and roll it into a coil. Use both hands while rolling it back and forth on the table. Once you have the coil, pinch one side of it to thin it out. You should end up with a carrot shape. This is the tail.

![Image of a green carrot-shaped clay piece](image3)

**STEP 4**
Attach the tail to the back of the dinosaur’s lower body. Make sure you smooth out the seam between the tail and the body so the tail stays securely on the dinosaur.

![Image of a green dinosaur with a tail](image4)

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STEP 5
Once the tail is secured on the body, stretch the top part of the dinosaur out by squeezing and pinching the clay.

STEP 6
When you have enough length for the body, bend the top part to form its head. Slice the head halfway and pull apart to make the mouth. Pinch out T-Rex's arms with your fingers.

STEP 7
Pinch out teeth. Poke both sides of the body with the wooden stick to create scaly texture and don't forget to carve eyes and nostrils for your T-Rex to see and smell.

STEP 8
Decorate your T-Rex however you wish. In the example below, I rolled some orange clay out to make stripes.

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STEP 1
Roll 2 oz piece of clay into a cylinder. On it, with the plastic knife, draw four lines dividing it into four equal parts. Cut off one part, which is 1/4, and set it aside. With the knife, split the bigger piece of clay one third down lengthwise on both sides. Then pull split parts apart. You should end up with the letter 'X'.

STEP 2
Smooth all corners out of your letter 'X' and bend all ends down to form feet. Press the wooden stick into each foot several times to create claws.

STEP 3
Take the remaining piece of clay and split it in half. Roll one part into a coil and thin out one side by pinching. You should end up with a carrot shape. This is the tail.

STEP 4
Attach the tail to the back of the dinosaur's body. Make sure you smooth out the seam between the tail and the body so the tail stays securely on the dinosaur.

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To make a Stegosaurus, repeat all the steps for Brontosaurus, except for the decoration part. What makes Stegosaurus different is that it has plates on its back. To make plates, choose a different color clay and roll it into a coil. Press the coil down from both sides to make it as flat as you can to form thick clay stripe. With the plastic knife cut the stripe into triangles.

Decorate your Brontosaurus. I made my dinosaur polka dotted. Think about how you want to decorate yours.

Attach two rows of triangles across the Stegosaurus’s back. Make smaller triangles by splitting the big ones in half. Use smaller triangles on the neck and the tail of the dinosaur. Roll two very thin coils and attach to the tail as spikes.

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TRICERATOPS

STEP 1
Build a quadruped body. You have one piece of clay left. Roll it into a ball and attach it to the front of the dinosaur’s body to form the head. Make sure you smooth out the seam between the body and the head to make it more secure.

STEP 2
Fold your hands into crab claws and pinch the crown out of the dinosaur's head.

STEP 3
Pinch out three horns. Poke both side of the body with the wooden stick to create scaly texture and don’t forget to carve eyes and nostrils.

STEP 4
Decorate your Triceratops. I covered mine with little flowers. Think about how you want to decorate yours.

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