

Make your own 3D cell

(The Netherlands)

Background

This project will help the students to understand the form and structure of organelles and cells. Physically making the cells and organelles will aid the students to retain the information.

You will need...

- ✓ Styrofoam balls (10", 3" and 1.5") (≈ 25 cm, 7.5 cm, 4 cm)
- ✓ acrylic paint in a variety of colours
- ✓ craft foam sheets/felt sheets in a variety of colours
- ✓ thick craft glue
- ✓ glue gun
- ✓ toothpicks
- ✓ white paper labels
- ✓ scissors
- ✓ measuring tape
- ✓ marker
- ✓ knife
- ✓ paint brush
- ✓ rubber bands
- ✓ teaspoon
- ✓ hole punch

Follow these steps

1. Cut a slice from the bottom of the largest ball so that it won't roll.
2. Stretch the rubber bands around the ball to section it into quarters.
3. Cut one quarter away.
4. Cut a quarter from the 3" ball and the 1.5" ball in the same way. Keep all the pieces.
5. In the centre of the opening cut into the 10" ball, use the knife and a teaspoon to carve out a hole large enough to hold the 3" ball.
6. Paint the parts of the cell:
7. Cell membrane (outside of 10" ball and a ¼" ring around the inside edge)
8. Cytoplasm (inside of 10" ball) – leave white and do not paint
9. Nucleus (outside of the 3" ball)
10. Chromatic (inside of the 3" ball)
11. Nucleolus (quarter wedge of 1.5" ball)
12. Let the paint dry.
13. Glue the 3" nucleus into the opening carved into the 10" ball.
14. Glue the nucleolus into the centre of the nucleus.
15. Cut out the remaining cell parts from different colours of craft 'foamies' or felt referring to diagrams in books or on the internet for shapes.

So what happened?

Students took ownership of their learning as they had to construct each part. The time input meant that students were engaged in the material for a considerable amount of time, which allowed them to become more familiar with the organelle.

What next?

1. Label the parts of the cell. Print names of cell parts, cut out, and attach to toothpicks. Peer assessment, as students test each other on their knowledge.
2. Making structures for the digestive system, respiratory system, the eye etc.

