2.2 POROSITY AND PERMEABILITY

How can you use models to show porosity and permeability?

MATERIALS

Per small group of students:

- Sponges of 4 types:
  - scrubber sponge
  - sea sponge
  - Mesh puff
  - microfiber sponge
- Four clear cups
- Water
- Graduated cylinder
- Timer

DIRECTIONS

1. Cut or fit each sponge in separate cups.
2. Slowly pour 25 ml of water on each sponge. Observe the results.
3. Measure the amount of water that flows through the sponge into the bottom of the cup using a graduated cylinder. Add measurements to the data chart.
4. Squeeze out the water in each sponge into a graduated cylinder. Measure the amount of water that was held in each sponge. Add measurements to the data chart.
5. Choose which sponge best represents each of the following models:
   a. A model that shows high permeability and high porosity. *An example may be a container with holes and hollow golf balls with holes. (Sandstone or dolomite are rocks of this type.)*
   b. A model with high permeability and low porosity. *An example may be a container with holes and solid golf balls). (Granite is a rock of this type.)*
   c. A model with low permeability and low porosity. *An example may be a container with no holes or filled with foam and a few mini incandescent or LED light bulbs. (Slate and other metamorphic rocks are rocks of this type.)*
   d. A model with low permeability and high porosity. *An example may be a container with no holes or filled with foam and plastic hollow golf balls. (Shale is a rock of this type.)*

REFLECTION

What other materials might you use to model these concepts?

	Scrubber sponge	Sea sponge	Mesh puff	Microfiber sponge
Amount in cup (permeability)				
Amount in sponge (porosity)				