Activities and Lessons the Cowan Museum Can Present in Classrooms

Please contact Anne Skinner at the Cowan Museum of History and Science to arrange for her to come to a PreK-12 classroom at anne.skinner@duplincountync.com, (910) 296-2149 (museum), or 828-553-7206 (cell). She will present to one classroom at a time, multiple classes in a day.

Preschool

Plants and Animals

- Students sort seeds by color, shape, and size.
- The needs of plants:
    - Students view pictures and discuss where there are more plants: in a desert or a forest and in a cave or a field. They discuss why.
    - Discuss whether plants eat food or make their own food.
    - Consider what plants need.
    - Students color the things plants need on the "Plants need…" coloring sheet (sunlight-yellow, water/rain-blue, food they make-green).
- Life cycle of a plant, bird, and butterfly:
    - Discuss and act out the life cycles of a plant, a bird, and a butterfly.

Soil

- Use a soil corer:
    - Students are asked, "What do you predict the soil under this grass is like? What color? How might it feel in our hands: powdery, gritty, creamy?". Discuss.
    - They predict whether the soil will look the same right below the surface as it does deeper down and share their predictions.
    - The presenter uses the soil corer to take a soil core. Students observe and describe what they see. They feel the texture of soil at different levels. They draw a conclusion about the prediction about whether the soil will look the same at different depths.
    - Students are asked, "What do you predict about the soil from different places on the school grounds: will it all look the same?". Students share predictions.
    - The museum staff member takes soil cores in 2 other places.
    - Students collect data by observing and feeling the soil samples.
    - Students report the data by telling what they saw or felt.
    - Students analyze the data by telling what differences or similarities they saw.
    - Students draw a conclusion and report it by telling whether their observations supported their prediction.
- Compare heating of air and soil using 2 types of thermometers:
    - Students predict whether the temperature is the same in the soil and in the air.
    - They measure soil temperature and air temperature.
    - They discuss their findings and draw a conclusion.
    - Students tell whether the air temperature was warmer or cooler this morning when they came to school.
    - They discuss what could have warmed the air this morning.
    - Students discuss, "Which do you think warms faster: air or soil? Why?".

Weather/Sun-Earth/Seasons

- Students are asked, "How can you tell when it's about to rain? Does anything seem different right before it rains?"
    - Discuss how the following might help you tell whether it's about to rain: color of clouds, amount of light, temperature change, air movement/breeze, and do leaves on trees do anything?
- Notice and record weather conditions for a week:
    - Each student draws the symbol for the weather today on a "Weather Data Sheet". Extension - Students record weather conditions each day for a week by drawing the symbol on their sheet.
- Arrange cards showing the sun in different positions in the sky:
    - Each group takes a pack of cards showing night sunrise/dawn, mid-morning, noon, mid-afternoon, and sunset/dusk, but arranged in random order. Groups put the cards in order.
- Arrange season cards in order:
    - Groups take a set of 4 cards and arrange them in order starting with the current season.

1st Grade

- Agriculture Program
    - Students discuss what plants need in order to make food and then act out plants taking in water, sunlight, and air (CO_2). Guided questioning leads students to recognize other needs of plants. Students match some types of plants to areas of the state where they grow. Samples of soil are passed around while they learn about what soil is made of. A few students assist with demos of tests of different types of soils to see how well they hold water, hold nutrients, and hold up (provide structural support for) plants. Students learn about ways to protect soil and water while viewing 8 slides of best practices in farming.

4th Grade

- Igneous rocks
    - Students pass around samples of igneous rocks as they learn how they formed, how they are identified, and what clues in the rock tell us about how they cooled. They will use a little bit of maple syrup and molasses to simulate the difference between 2 types of lava and discuss how the difference impacts the type of volcanic eruption.

5th Grade

- Weather
    - Students observe an air pressure demo and construct cloud-spotter wheels.
    - The class goes outside and measures temperature, wind speed, wind direction, and air pressure, and uses cloud charts to identify clouds. Students predict the weather using a Weather Predictor Chart they fill in.
    - Discussion questions guide students to explore what makes the wind blow, what happens when warm and cold air meet, what patterns do we see in weather systems moving across the country, what differences do we see in seasonal patterns at different latitudes and in different hemispheres.

- Climate
    - Students see a map of ocean density (thermohaline) currents, learn how they affect coastal climates, and predict what would happen if there is increased melting of ice sheets.
    - Students learn how hurricanes form and where they get their energy. Then they predict how an ice age and global warming could affect hurricanes.
    - Students analyze a graph of CO_2 vs. time and a graph of temperature vs. time.
    - Discuss how a warming climate could impact the amount of rainfall flooding, storms/hurricanes, and droughts and how that might affect plants, animals, agriculture, etc.
    - Students learn what people can do about climate change and select one thing they could do.
- Water Cycle
    - Students learn about the science behind the water cycle, see a demo, and match pieces of a water cycle puzzle.

High School – Earth/Environmental Science

- Plate Tectonics and Geologic History of NC
    - Students use posterboard continents, terranes, and ocean to model the tectonic and geologic history of NC while a museum staff member narrates the events. Then they review by arranging diagram strips of the events in order.
- Climate Change (in preparation)
    - Students see a PowerPoint presentation and engage in discussion with a museum staff member on the causes, evidence for, and impacts of climate change and what we can do about it.