Structuring an Outdoor Science Lesson

BEFORE GOING OUTDOORS

Set up the question.
Clearly define the purpose of going outdoors and the question students will be investigating. Make sure students understand how the question connects to what they have been doing in class.

Give students a clear task.
Give students a concrete task to help focus their observations, and their thinking. They should know what they are expected to have completed by the end of their time outdoors and where and how they should record their findings. If they will be investigating something they have looked at before (characteristics of water, plant structure) be clear about the focus of today’s observations.

Ask students to predict what they will find.
Ask students what they already know that could help them with their investigation. Where will they look and why? What characteristics or behavior do they expect to find?

OUTDOORS

Model what you want students to do.
Once outside, demonstrate what you are asking students to do. Show them how to look at buds, or seeds, without damaging the plant; how to lift a stone gently to look for organisms in the soil; where and how to look for stones, or signs of erosion. Ask questions that model the kinds of questions you want them to ask themselves as they investigate.

Check-in with students after a few minutes.
Bring students back together after a few minutes of independent exploration to help students interpret what they are, or are not, finding. Ask a couple of students to share what they found, and where. Try looking at one example together before sending students back out to continue their investigations. If no one has found what they were looking for (a snail, signs of erosion, etc.) talk about it. Are they sure it’s not to be found? How do they know? Help students understand that not finding something can provide as much information as finding it.

Give students time to explore.
Let students experiment with, and—even playfully—explore the phenomena they are investigating. For many students the experience of being outdoors itself will be new and unfamiliar. They may never have dug in the dirt before or seen a worm up close.

Take notes outdoors.
Allow time outside for students to record their observations in their notebooks using words, pictures, numbers, and questions, to capture their “field experience.”

Reconvene at your gathering spot.
Have students reassemble before heading back to class. Ask them to help scan the area to make sure no tools or litter are being left behind and that anything that has been disturbed, like an overturned rock, is replaced.
BACK IN THE CLASSROOM

Link the outdoor experience to class content.
Discuss what students found outdoors and how it confirms or challenges what they have been learning in class.

Encourage students to take their questions seriously.
Students’ questions about what they find outdoors can be used to direct future investigations that involve the whole class. (Will the bud turn into a leaf or a flower? Will the tree lose its leaves?) It may take some time — weeks, or even months — to find an answer. Help them decide which questions they might answer by revisiting the schoolyard. Could some be answered by their classroom investigations? Are there books or online resources that could help them find an answer?

Display outdoor findings to refer to later in the unit or in the year.
Preserve some of the information you collect from outdoors to compare with the results of in-class investigations. Record class data (air temperature, insect sightings) on a chart to analyze over time; begin a classroom collection of stones, seeds, or soil samples; temporarily house schoolyard organisms in a classroom terrarium; or display students’ field notes and drawings.