

Guidance for the Schoolyard Fieldwork Pathway

Why do we observe _____ in these places on our schoolyard?
evidence of weathering or erosion

Why you'd want to do it: While you can incorporate field work on the schoolyard one time in a lesson, you can also create more coherence for students and cultivate a deepened sense of place if students engage in ongoing schoolyard field work throughout the unit. Ongoing fieldwork also helps students make observations of slower changes over time that they may not notice in just one observation session.

What your ongoing field work might look like:

- **Adopt a spot/ sit spots:** Have students pick one spot to visit once a week. Guide students toward productive spots that may demonstrate a change over time from rain, wind, plant roots, foot traffic or other possible weather and erosion agents. You can use a hula hoop or a piece of string to help them focus on a very specific zoomed in spot. Give them different prompts for observation each time in their field work.
- **Schoolyard walks, photo documentation, or mapping:** Have students walk the schoolyard after key lessons with specific and different prompts for observation. Have them take photographs of the schoolyard and print those to add to a public place such as a:
 - Map of the schoolyard
 - Related phenomenon board
 - Potential problem areas board

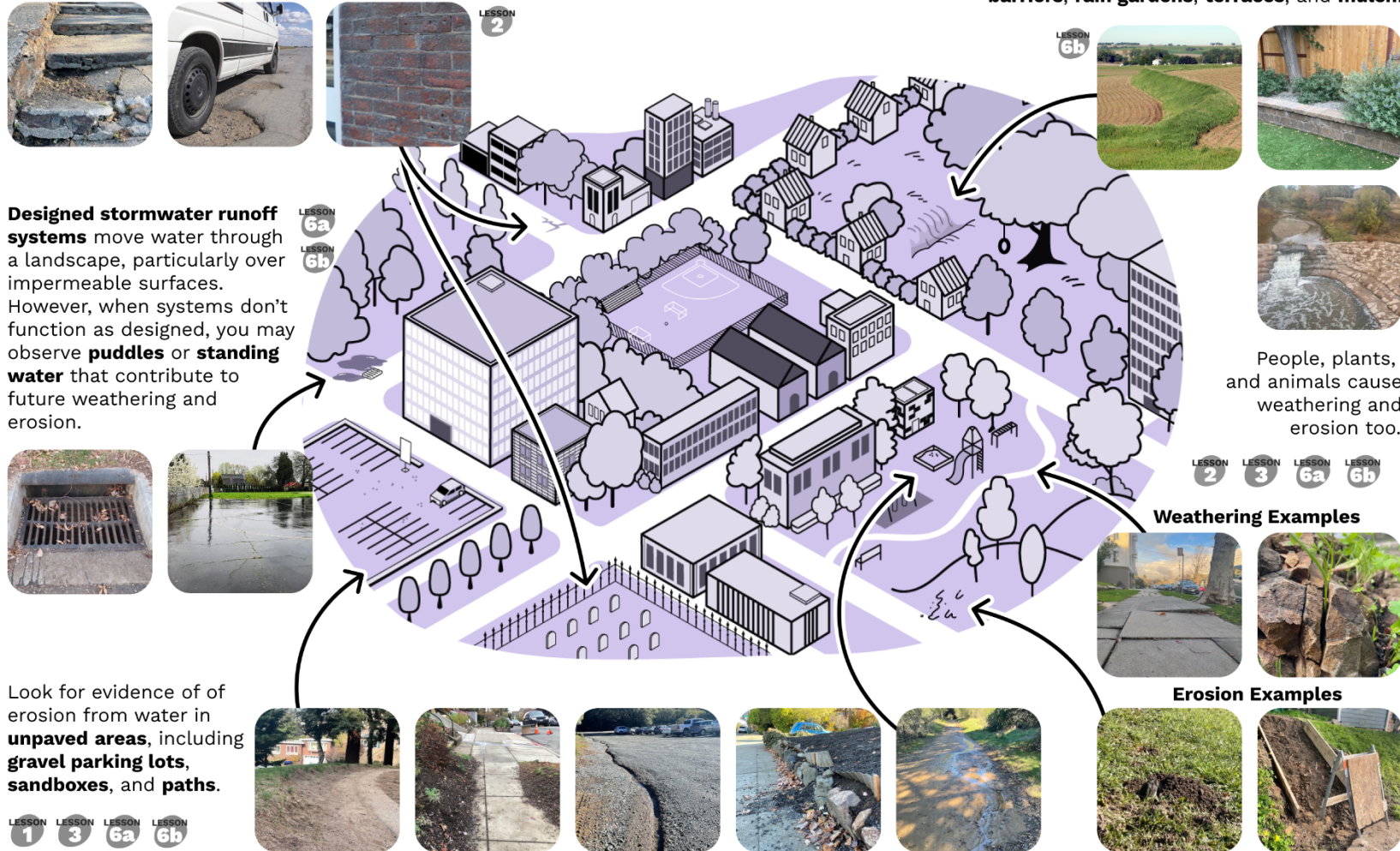
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People-scale weathering, erosion, and deposition (examples from Oakland, CA)

You and your students might observe everyday examples of weathering, erosion, deposition, and water around your schoolyard and in the neighborhood. If you live in an urban built environment, you may see more evidence of weathering than erosion, as the many impermeable surfaces are designed to minimize erosion. You may also see puddles and areas of standing water. These are evidence that stormwater systems are not working as designed. Water flows much more quickly over impermeable surfaces, causing erosion down the slope when it hits loose sand or soil.

Look for weathering in the built environment: **potholes**, **cracked sidewalks**, and **old buildings** or **gravestones**.

Weathering is difficult to prevent. You may find evidence of **strategies to prevent erosion** such as **barriers**, **rain gardens**, **terraces**, and **mulch**.



Part 1: Identify areas with evidence of weathering and erosion on the schoolyard

Go out on your schoolyard. What evidence of weathering and/or erosion will students likely observe? List all the examples you observe.	For each example, develop a model to answer this question Why do we observe _____ in this place on our schoolyard? <i>evidence of weathering or erosion</i> • Research the underlying mechanism causing schoolyard phenomena. How can you explain them? • The mechanisms underlying phenomena in the designed unit include water, ice, plant roots, and people breaking apart hard materials, emphasizing ice as a weathering agent and water, steepness of the slope, wind, and ice as erosion agents. How does the mechanism for the new phenomenon compare with these mechanisms?
	Highlight any new science ideas in your explanation that students will need to figure out to explain this new phenomenon.

Part 2: Draft Your Plan and Materials

Materials

Add links to any slides, handouts, videos, readings, or other student facing materials you create.

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Lesson question	My modifications
LESSON 2 How can <u>water, ice, or other things</u> break apart rocks?	Questions to ask yourself 1. What kind of <u>weathering phenomena or problems</u> will students observe? 2. How will they document their observations? 3. How might they make sense of their observations and update the Class Model? Ideas for what students might do on the schoolyard: • Observe and identify places where weathering has happened and predict where weathering might happen in the future. • Mark places with observable weathering on a map of the schoolyard. • Take pictures of places with observable weathering and add it to the related phenomenon board. • Identify and track places that could be a problem (tripping, unsafe to talk, cracks in concrete). Consider who might these places be a problem for? What kind of information do we need to know for sure? What kind of information would we need to generate solutions? Find additional ideas and space for planning in the Lesson 2 Adaptation Tool.
LESSON 3 How can <u>rocks and dirt</u> move from one place to another?	Questions to ask yourself 1. What kind of <u>erosion by water phenomena or problems</u> will students observe? 2. How will they document their observations? 3. How might they make sense of their observations and update the Class Model? Ideas for what students might do on the schoolyard: • Following a rain event, observe and identify places where erosion has happened • Predict where erosion by water might happen in the future

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	• Mark places with observable erosion and deposition on a map of the schoolyard. • Take pictures of places with observable erosion or deposition and add it to the related phenomenon board. • Identify and track places that could be a problem (sand, mulch or dirt running of into the playground, trenches or channels). Consider who might these places be a problem for? What kind of information do we need to know for sure? What kind of information would we need to generate solutions? Find additional ideas and space for planning in the Lesson 3 Adaptation Tool.
LESSON 5 How and why did _____ end up _____?	Questions to ask yourself 1. What kind of <u>deposition phenomena or problems</u> will students observe? 2. How will they document their observations? 3. How might they make sense of their observations and update the Class Model? Ideas for what students might do on the schoolyard: • Observe sediments in a body of water on or adjacent to the school campus. • Observe earth materials on the schoolyard that have traveled there by wind. Find additional ideas and space for planning in the Lesson 5 Adaptation Tool.
LESSON 6a How does water affect the places we live, work, and play?	Questions to ask yourself 4. What kind of <u>surfaces</u> are on your schoolyard that students might observe if they pour water over them? 5. How will they document their observations? 6. How might they make sense of their observations and update the Class Model? Ideas for what students might do on the schoolyard: • Investigate how water moves over different surfaces (concrete, vegetation, open soil). Example runoff investigation video and activity Find additional ideas and space for planning in the Lesson 6a Adaptation Tool.

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LESSON 6b

What can we do to reduce the effects of a lot of water?

Questions to ask yourself

1. What kinds of problems due to weathering and erosion might students identify on our schoolyard?
2. Have they been documenting these already in Lessons 2, 3, and 6a? If so, how will we build on that. If not, how could they document their observations?
3. What might students do about these problems? Do you want students to determine what solutions might be best? Do you want students to actually design solutions to address the problems?

Ideas:

- Identify problem areas on the schoolyard due to weathering, erosion, and/or water and then generate solutions to address them.
- Find additional ideas and space for planning in the Lesson 6b Adaptation Tool and Lesson 6b Guidance for Swapping a Schoolyard Problem document.

Ms. C's Adding Adopt-A-Spots

Schoolyard phenomena or problems students might observe

As part of a weekly routine, students adopted their own individual spot in their school garden or along the sidewalk in front of the school. Students identified their spot using a string loop. This helped them zoom in very closely at a small scale. They visited their spot for 5-10 minutes and each week sketched what they observed. This helped them make observations and document changes that happened over short time periods.



LESSON 3

How can rocks and dirt move from one place to another?

Following Lesson 3, students identified their spot, sketched what they observed in their spot, and explained why they thought their spot looked the way it did.

LESSON 5

How and why did [rocks, dirt, or sand] end up [in this place]?

Following Lessons 4 and 5, students sketched their spot and identified if and what had changed in their spot over the course of the last week.

LESSON 6a

How does water affect the places we live, work, and play?

As part of Lesson 6a, students poured water over their spot and made observations. They sketched what they observed and identified the path of movement, slope, how quickly the water moved, and if and how any earth materials moved.

LESSON 6b

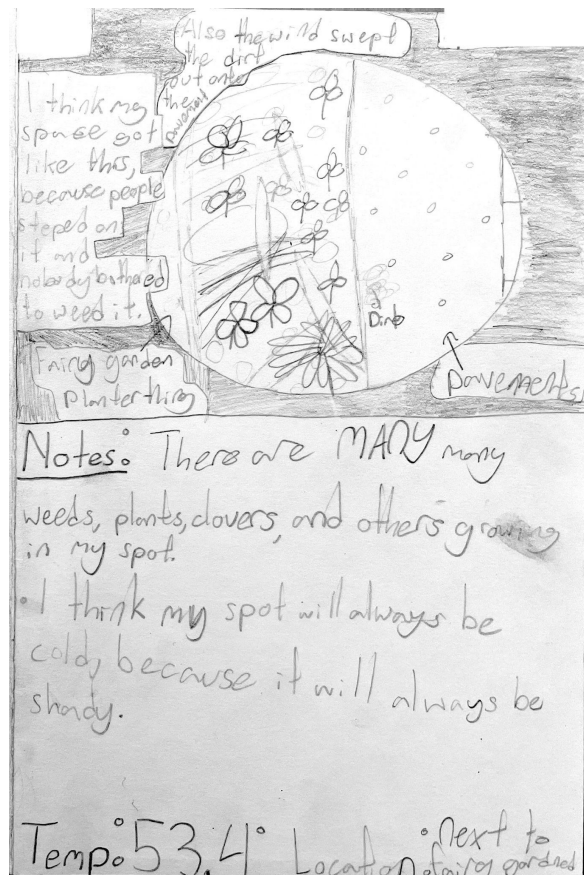
What can we do to reduce the effects of a lot of water?

Ms. C swapped schoolyard problems for the designed Lesson 6b.

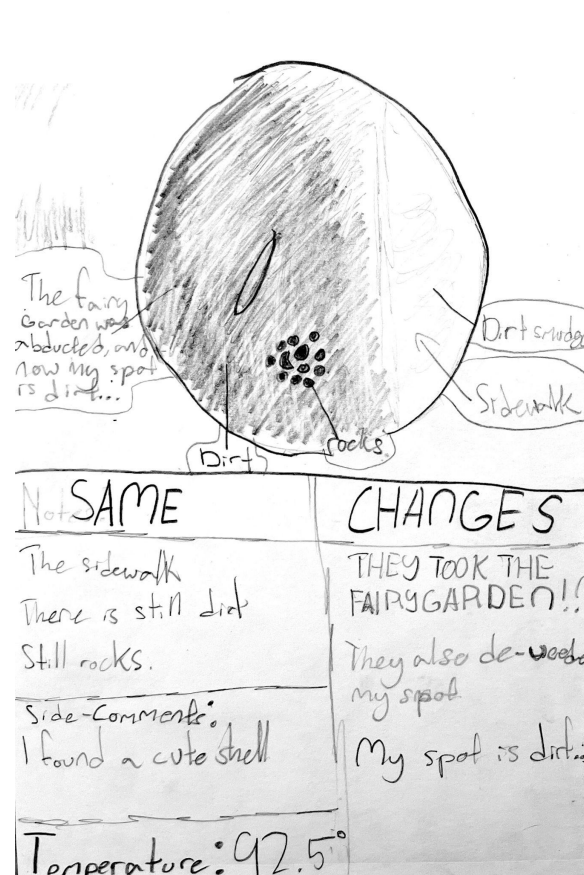
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Examples of one student's notebook

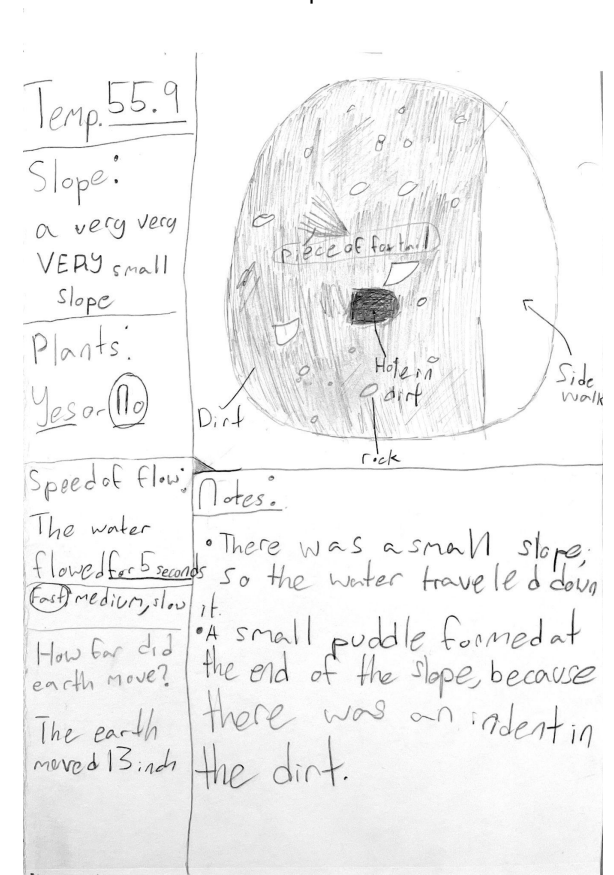
Observation 1 after Lesson 3



Observation 2 after Lesson 5



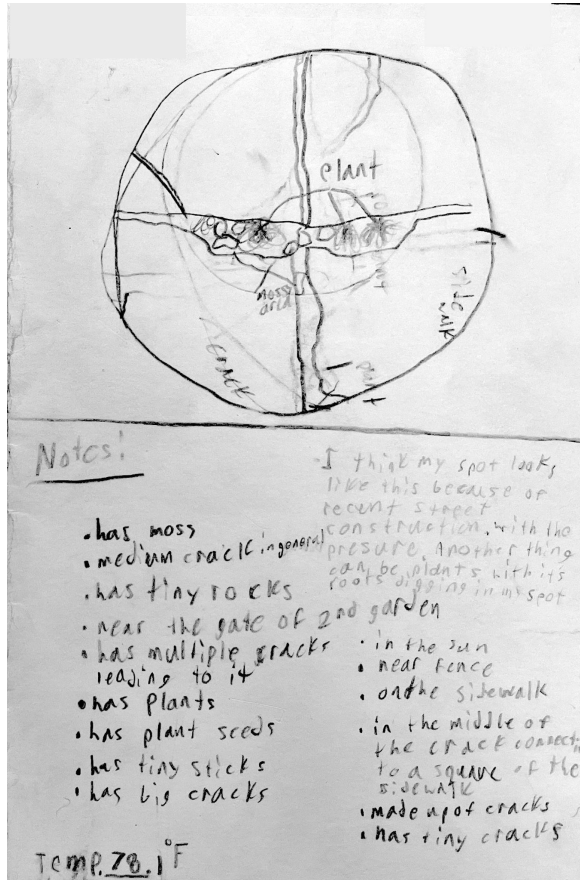
Observation 3 as part of Lesson 6a



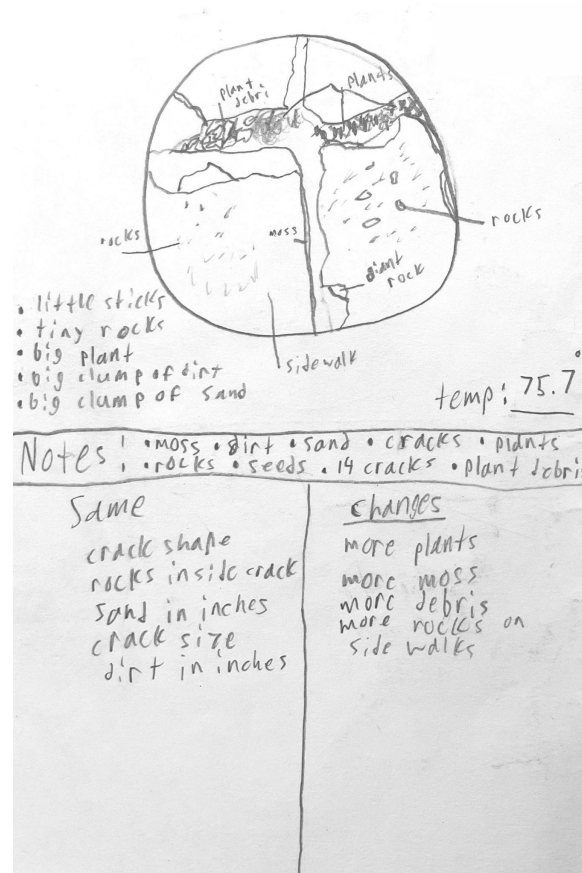
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Examples of another student's notebook

Observation 1 after Lesson 3



Observation 2 after Lesson 5



Observation 3 as part of Lesson 6a

