DAY 1 | The puddle that closed the playground

Name: _____ Date: _____

TODAY'S MISSION

Explain how rain can become runoff and identify two schoolyard features that may affect where water collects.



AI-generated lesson illustration. Educator review required before classroom use.

ACTIVITY 1

Read this original classroom passage: Rain falls on every part of a schoolyard. Some water enters spaces in the soil. Some stays in puddles, and some moves downhill as runoff. A paved court has few openings, so much of the water moves across its surface. A planted area may hold or soak in some water, but it cannot hold an unlimited amount. Soil that is already wet may absorb less additional water. A drain can carry water away, but leaves or rubbish may block it. A good flood solution considers where the water goes next. Identify two details that explain why water might collect near a school entrance.

SHOW YOUR THINKING

ACTIVITY 2

Draw the schoolyard and label rainfall, runoff and a place where water might soak into soil. Add one question your drawing cannot answer.

SHOW YOUR THINKING

ACTIVITY 3

A classmate says, "Grass always prevents flooding." Use the passage to explain why this claim needs revision.

SHOW YOUR THINKING

Observation journal

Name: _____ Date: _____

Record your own observations in blank cells. If using the provided fictional numbers, label your work Fictional practice data. Include units for measurements.

Feature	What I notice	My question
Paved court		
Planted area		
School entrance		

DAY 2 | A fair test of two surfaces

Name: _____ Date: _____

TODAY'S MISSION

Plan and conduct a controlled model investigation comparing collected runoff from two surfaces and describe limits of the evidence.



AI-generated lesson illustration. Educator review required before classroom use.

ACTIVITY 1

Identify the variable we change, the measurement we collect and three conditions we keep the same.

SHOW YOUR THINKING

ACTIVITY 2

Fictional practice data, not measured classroom results: pavement runoff is 160, 170 and 165 mL; soil runoff is 80, 90 and 85 mL. State a supported claim using two numbers.

SHOW YOUR THINKING

ACTIVITY 3

A group pours 200 mL but collects 85 mL. Can they say exactly 115 mL soaked into the soil? Explain.

SHOW YOUR THINKING

Surface runoff trials

Name: _____ Date: _____

Record your own observations in blank cells. If using the provided fictional numbers, label your work Fictional practice data. Include units for measurements.

Surface and trial	Runoff in mL	Observation
Pavement 1		
Pavement 2		
Pavement 3		
Soil 1		
Soil 2		
Soil 3		

DAY 3 | Two solutions with real tradeoffs

Name: _____ Date: _____

TODAY'S MISSION

Develop two distinct flood-reduction designs and compare them using shared criteria, constraints and possible downstream effects.



AI-generated lesson illustration. Educator review required before classroom use.

ACTIVITY 1

Draw two different solutions. Label what each does to water, its token cost and one limitation.

SHOW YOUR THINKING

ACTIVITY 2

A team proposes four sponge sections. Each costs two tokens and the budget is six. Does the proposal meet the budget? Revise it.

SHOW YOUR THINKING

ACTIVITY 3

Why must the test measure water at both the school entrance and the neighboring outlet?

SHOW YOUR THINKING

Design comparison planner

Name: _____ Date: _____

Record your own observations in blank cells. If using the provided fictional numbers, label your work Fictional practice data. Include units for measurements.

Design	Water pathway	Cost and tradeoff
Design A		
Design B		

DAY 4 | Test improve and test again

Name: _____ Date: _____

TODAY'S MISSION

Use repeated measurements to compare two designs against criteria and justify a revision without treating fictional practice data as observations.



AI-generated lesson illustration. Educator review required before classroom use.

ACTIVITY 1

Use these fictional practice results. A: entry 40,50,45 mL and neighbor 80,90,85 mL. B: entry 20,30,25 mL and neighbor 120,130,125 mL. Thresholds are entry at most 60 and neighbor at most 100 mL. Which design meets both in all trials?

SHOW YOUR THINKING

ACTIVITY 2

Using the fictional results, compare mean entry runoff for A and B. Does the smaller entry mean alone establish the better design?

SHOW YOUR THINKING

ACTIVITY 3

A team adds storage to Design B and predicts lower neighbor runoff. What must it do before reporting that the revision works?

SHOW YOUR THINKING

Two design trials

Name: _____ Date: _____

Record your own observations in blank cells. If using the provided fictional numbers, label your work Fictional practice data. Include units for measurements.

Design and trial	Entry in mL	Neighbor in mL	Notes
A trial 1			
A trial 2			
A trial 3			
B trial 1			
B trial 2			
B trial 3			

DAY 5 | Pitch a schoolyard solution

Name: _____ Date: _____

TODAY'S MISSION

Present a design recommendation supported by measurements, explain a tradeoff and identify a next investigation.



AI-generated lesson illustration. Educator review required before classroom use.

ACTIVITY 1

Write a recommendation using the fictional results from Day 4. Include a claim, an entry value, a neighbor value, the token cost and a limitation.

SHOW YOUR THINKING

ACTIVITY 2

Score the statement "B is best because 20 mL is the smallest" with the rubric. Explain what the writer should add.

SHOW YOUR THINKING

ACTIVITY 3

Propose a next investigation that addresses one limitation of the unit. State the changed condition and two outcomes to measure.

SHOW YOUR THINKING

Presentation evidence planner

Name: _____ Date: _____

Record your own observations in blank cells. If using the provided fictional numbers, label your work Fictional practice data. Include units for measurements.

Part of my pitch	Evidence or explanation	Revision
My claim		
Two designs compared		
Criteria and budget		
Limit and next test		