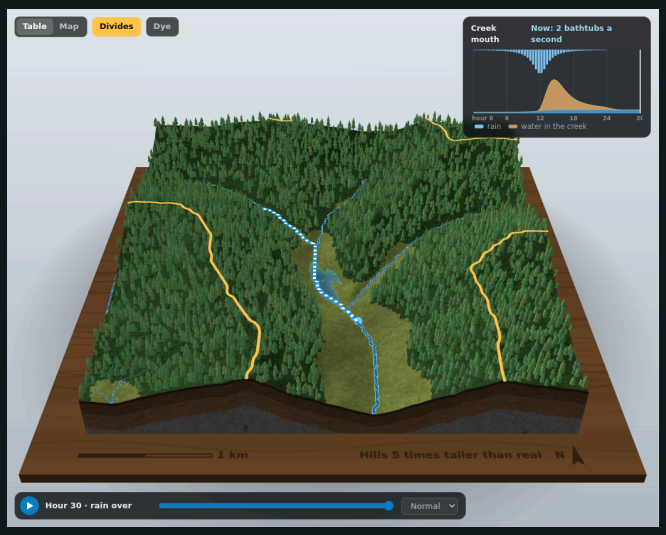
mytekDev

Watershed Lab: Where Does the Rain Go?

Grades 6-8 · 45 minutes

Earth science



Slides, rubric and answer key **Print and go** **No student accounts**

Chromebook friendly

What's included

- A one-page overview: objectives, essential question, vocabulary, standards and assessment
- A 45-minute lesson sequence: warm-up, direct instruction, guided practice, independent practice, closure
- Slides for the board: a PowerPoint file that also opens in Google Slides
- A student worksheet with a QR code and a drop table
- A 3-question exit ticket, two to a page, with an answer key
- A rubric: 3 criteria, 4 levels, scored out of 12
- Differentiation for English learners, students with IEPs or 504 plans, and students who need more support or more challenge
- Cross-curricular extensions, and notes for teaching it in grades 4 and 5 and in high school environmental science
- Standards: NGSS

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Students rain a real storm on a forest valley and watch the creeks swell. They read how much of the rain soaked in and how much ran off, find the watershed's edge, the divide, and follow one raindrop down to the creek mouth. A drop that lands a step outside the yellow line ends up in another watershed altogether.

At a glance

ESSENTIAL QUESTION

Rain falls on the whole valley. What decides which creek it ends up in?

OBJECTIVES

Students will be able to:

- define a watershed as all the land that drains to one place, and find its divide on a model
- explain why most rain on a forest soaks in, and where the rest goes
- trace the path of water downhill from where it lands to the creek mouth
- explain why rain on one side of a divide ends up in a different creek

VOCABULARY

Watershed, Divide, Runoff, Infiltration, Creek mouth

STANDARDS

MS-ESS2-4, MS-ESS3-3

TIME AND MATERIALS

45 minutes, grades 6-8.

- One computer or Chromebook per student
- A projector
- The worksheet and exit ticket, one copy each per student
- The rubric, one copy per student if you grade the work

PREP

Make copies of the worksheet and exit ticket. Before class, open mytekdev.com/try/watershedlab?lesson=where-does-the-rain-go&ref=tpt-watershedlab-1 once on a student computer: it opens on Millbrook Valley, and checks that your school's filter allows the app. Run it yourself, about ten minutes: press Rain with the Big storm, read the card, then Follow a drop from high in the valley and from just outside the yellow line, then the Map view.

ASSESSMENT

- Formative: the questions under What to look for, asked while students work, and the exit ticket (answer key included).
- Summative: the worksheet, scored with the rubric.

TECHNOLOGY AND PRIVACY

Runs in any browser, Chromebooks included, with nothing to install. Students need no account and no email: the link works signed out, and nothing they do is stored on our server unless they choose to save.

Lesson sequence

MINUTES	STAGE	WHAT YOU DO	WHAT STUDENTS DO
0 to 5	**Warm-up** Hook	Show the title, essential question and Today I can slides (about 1 minute). Then the warm-up: a day of rain on a forest, where does it go? Write every answer on the board.	Answer the warm-up on the worksheet.
5 to 12	**Direct instruction (I do)** Model it	Project the app with the starter open. Press Rain and narrate: rain falling, the creeks swelling, the gauge drawing the rain as bars and the creek as a curve. When it ends, show the yellow line, then The Big storm on forest: 93 of every 100 drops soaked in. > **It's working when:** Point at the gauge: the creek peaks after the rain does, about two hours later. The water takes that long to run down to the mouth.	Watch, and fill in the vocabulary on the worksheet.
12 to 22	**Guided practice (We do)** Follow a drop together	Students open the link or scan the QR code. A short guide walks them through Rain and Follow a drop. Everyone clicks high inside the yellow line, then just outside it, and reads the card for each. > **Watch for:** Students who think the yellow line is a fence or a river. It is the top of the land: water runs away from it on both sides.	Fill in the first two rows of the drop table: where it landed, how far it ran, how long it took, where it ended up.
22 to 38	**Independent practice (You do)** Five drops and the map	Students drop five raindrops in different places, then switch to Map and find the divide on the contour lines. Walk the room with the What to look for questions. > **If they ask:** "Your drop went through a pond on its way. Why does a pond sit where it does?" The pond	Fill in the drop table, then find the divide on the Map and say how they found it.
38 to 45	**Closure** Showcase and exit ticket	Show the Showcase slide. Two students explain where each drop goes, then go back to the warm-up answers. Hand out the exit ticket.	Answer the exit ticket.

Before you teach: a ten-minute walkthrough

Open mytekdev.com/try/watershedlab?lesson=where-does-the-rain-go&ref=tpt-watershedlab-1. A short guide opens over the app. A forest valley sits on a wooden tabletop, about four kilometers across, its hills drawn five times taller than real so the shape reads.

1. **The storm.** Press `Rain` with the Big storm. Rain falls, the creeks swell, and the gauge draws the rain as bars from the top and the creek as a curve from the bottom.

2. **The card.** When it ends: 93% soaked in and 7% ran off, and the creek rose from 0.11 to 3.5 cubic meters a second, highest at hour 15, about two hours after the heaviest rain.
3. **The divide.** The yellow line appears after the first storm. `Divides` turns it off and on.
4. **A drop.** Pick `Follow a drop` and click high on the land: the path runs to the creek and out of the mouth, about 3 kilometers in about an hour. Click just outside the yellow line: it runs off the table into another watershed.
5. **The Map.** Press `Map`: the valley from straight above, a contour line every 10 meters.

> The moment that lands is the second drop. Students expect water to go to the nearest creek; a drop a step outside the line goes the other way entirely.

Background for the teacher

A watershed is all the land that drains to one place. Its edge, the divide, follows the high ground: rain landing on the ridge runs away from it on both sides. Every creek has a watershed, and small ones nest inside bigger ones.

Rain that reaches the ground either soaks in or runs off. Forest soil, covered in leaves and full of roots and holes, takes in most of an ordinary storm. What soaks in moves slowly through the ground and seeps into the creek over days, which is why a creek keeps running between storms. The rest runs downhill over the surface to the nearest creek.

Common mistakes: thinking the divide is a river or a fence; thinking all rain ends up in the river at once; and thinking groundwater flows in underground rivers. The valley is a model with numbers of the right size, not a real place. The runoff uses the curve numbers engineers use, and the storms are real ones for central Iowa.

What to look for

Ask these while students work. A student who has understood the lesson can answer them without help:

- Point to the divide. Why is it there and not somewhere else?
- Where did most of the rain go?
- Your drop took about an hour to reach the mouth. Why did the creek peak after the rain did?
- Why did the drop outside the line go to a different place?
- On the Map, how can you tell where the ridge is?

> The fourth question is the real test: a student who says the drop ran downhill away from the high ground has the idea of a divide.

Cross-curricular extensions

- Geography: find your own school's watershed on How's My Waterway (EPA, free), and the creek or river the rain on the parking lot ends up in.
- Math: the creek rose from 0.11 to 3.5 cubic meters a second. How many times as much is that? How many liters in one second at the peak?
- English: write the raindrop's trip from the hilltop to the beach in the first person, in eight sentences.
- Art: draw your neighborhood with its high ground and where the rain would run.

Vocabulary

Watershed	All the land that drains to one creek, river or lake.
Divide	The high line around a watershed. Rain on one side drains to this creek, rain on the other side to another.
Runoff	Rain that runs over the ground instead of soaking in.
Infiltration	Rain soaking into the ground.
Creek mouth	Where a creek flows out into a bigger body of water. Here, the beach at the front of the table.

Differentiation

ENGLISH LEARNERS

- Keep the vocabulary slide up, and point at the screen as you say each word: the yellow line, the creeks and the gauge carry the meaning.
- Pair each learner with a partner for the drops; the path is drawn on the land and the card names where it went.
- Accept the drop table as inside or outside the line, without sentences.

STUDENTS WITH IEPS OR 504 PLANS

- Pair students for the independent part, one clicking and one filling in the table.
- Zoom the browser to 125%; the card and the table stay readable.
- Allow three drops instead of five, where the IEP allows a modified assignment.

STUDENTS WHO NEED MORE SUPPORT

- A sentence starter: "The drop went to ___ because ___."
- A check-in after the guide: every student has followed one drop inside the line and one outside before anyone moves on.
- Ask only which side of the yellow line each drop landed on.

STUDENTS READY FOR MORE

- Switch to the Once in a hundred years storm: how much of it runs off the same forest, and why more?
- Pick Shape the land and raise a ridge across the valley: where does the divide move, and where does the water go now?
- On the Map, find the steepest slope by the spacing of the contour lines.

Adapting for other grades

Younger students: In grades 4 and 5, open Setup and pick grades 2 to 5: readings are in words and pictures and the sheet asks the simpler questions. Do the guide together and stop there; skip the third rubric row; total 8, and 6 meets the objectives.

Older students: In high school, pick high school in Setup: the cards add the curve numbers engineers use. Students compare the forest on sandy soil and on clay, and explain the difference with infiltration.

Student worksheet

Name: _____ Date: _____

Open the app: scan the QR code, or go to mytekdev.com/try/watershedlab?lesson=where-does-the-rain-go

Essential question: Rain falls on the whole valley. What decides which creek it ends up in?

Warm-up: A day of rain falls on a forest. Where do you think the water goes? _____

1. **Vocabulary.** Watershed, divide, runoff, infiltration, creek mouth: write each in your own words.

2. **The drop table.** For each drop: where it landed _____; inside or outside the line ____; how far it ran _____; how long it took _____; where it ended up _____. One drop on each line.

1. After the Big storm, how much of the rain soaked into the forest, and how much ran off?

2. Two drops land a step apart, on either side of the yellow line. Where does each end up, and why?

Watershed Lab: Where Does the Rain Go?

Exit ticket

Name: _____

1. A watershed is (A) a building where water is stored (B) all the land that drains to one place (C) a river and its banks

2. Most of the rain on the forest (A) ran off into the creek (B) soaked into the ground (C) dried up in the air

3. Rain lands just outside the divide. Explain why it does not end up in this creek.

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Answer key: exit ticket

QUESTION	ANSWER	WHY
1	B	Every bit of land inside the divide drains to the same creek mouth.
2	B	In the Big storm 93% soaked in. Forest soil takes in most of an ordinary storm.
3	The divide is high ground	Water runs downhill away from the ridge on both sides, so rain outside the line runs into a different watershed. Saying it is outside the line alone is half.

Rubric

Score each row from 1 to 4.

Name: _____

CRITERIA	4 EXCEEDS	3 MEETS	2 APPROACHING	1 BEGINNING
The drop table	Five drops recorded with where each landed, how far it ran, how long it took and where it ended, inside and outside the line.	Five drops recorded with where each landed and ended.	Some drops recorded.	No drops recorded.
The divide	Explains the divide as the high ground water runs away from on both sides, and finds it on the Map by the contours.	Explains that rain on either side of the line goes to different creeks.	Says the line is the edge, with no reason.	No explanation, or says the line is a river or a fence.
Where the rain went	Uses the card's numbers: most of the storm soaked in, the rest ran off, and the creek peaked after the rain.	Says most rain soaked in and some ran off.	Says the rain went into the creek, with no amounts.	No answer.

Total: ____ / 12. A score of 9 or more meets the objectives.

Standards

The lesson is built for MS-ESS2-4, water moving over the land under gravity, and lays the ground for MS-ESS3-3, monitoring a human impact on a watershed.

FRAMEWORK	CODE	GRADES	STANDARD	HOW THE LESSON MEETS IT
NGSS	**MS-ESS2-4**	6-8	Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.	Students use a model of the gravity part of the cycle: rain on land, infiltration, runoff, and flow downhill to the creek.
NGSS	**MS-ESS3-3**	6-8	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.	Students define the watershed, the area any method of monitoring a creek has to cover.

Checked November 2026 against: NGSS MS-ESS2-4, Earth's Systems, NGSS MS-ESS3-3, Earth and Human Activity.

Optional: save student work in a free class

The whole lesson runs at the link on the worksheet, with no accounts and no sign-up.

To keep students' work, and see it all in one place, make a free class. It takes about ten minutes, once, and covers every lesson in this series: mytekdev.com/tools/class-setup

Students in a class open mytekdev.com/tools/watershed-lab/lessons/where-does-the-rain-go/start instead of the worksheet link. Each one gets their own copy of the starter, and the same link reopens it next time.

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