CURIOSITY AT HOME
BUTTERFLY PUDDLE STATION

Have you ever noticed butterflies gathering on puddles after a rainstorm? You can help create a healthy habitat for these important pollinators by creating an artificial mud puddle station for your yard or garden.
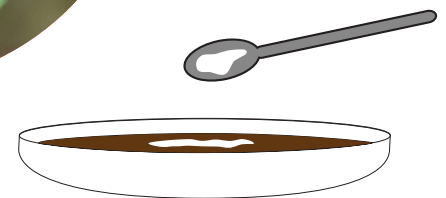
MATERIALS

- Pie pan or other wide shallow dish
- Dirt
- Measuring spoon
- Salt (sea salt is best)
- Water
- **Optional:**
  Garden compost
  Small rocks or pebbles
  Science notebook or journal
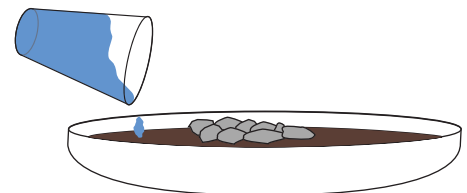 Something to write/draw with
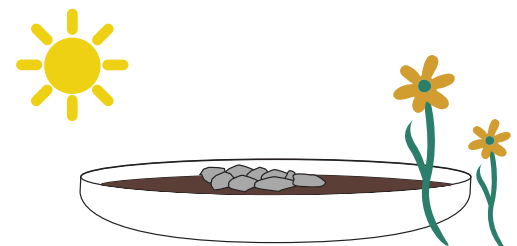 Digital camera or phone with camera

PROCEDURE

- Fill your pan or dish with dirt. Add 1 teaspoon of salt and mix to combine. You can also add a few spoonfuls of garden compost, if available.

- Slowly add water until the dirt has a thick, muddy consistency. You can also place some small rocks on top of the mud to create a dry area for butterflies to land on.

- Place your mud puddle station outside, preferable near flowering plants.

- Observe your mud puddle station over several days. What butterflies do you notice using it? What other insects or wildlife are benefiting from it?

- Add more water as needed if dirt dries out. Refresh with additional salt and compost approximately once a month.

Fill the pan or dish with dirt. Add 1 teaspoon of salt

Add water until dirt has a thick, muddy consistency

Place mud puddle outside near flowering plants

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DID YOU KNOW

Like all living things, butterflies need water to survive. Butterflies also need minerals to stay healthy. Butterflies use their long tube-shaped tongues, or proboscises, to suck up these essential salts and nutrients from moist soil and puddles. This behavior is called puddling.

TRY THIS

· Add a butterfly food area to your mud puddle station. Place a small dish inside or next to your mud puddle station. Fill the dish with some pieces of overripe fruit, like bananas, apples, and oranges. What kinds of fruits do butterflies at your station prefer? As the fruits become mushier, do you notice more or less butterflies at your station?

· Research pollinator-friendly plants to attract more beneficial butterflies and bees to your garden. What are some beneficial plants for feeding hungry caterpillars? Which flowering plants attract adult butterflies? Check out the Pollinator Garden at Pacific Science Center to learn more about Pacific Northwest native plants that attract and support native pollinators throughout the year.

· Use the Seek app to identify butterflies and other insects that you notice at your mud puddle station. You can also take pictures of butterflies at your station and share your observations through the iNaturalist app or website (get an adult to help set up a free account). By sharing these observations, you can connect with other naturalists and help professional researchers learn more about the types of local pollinators in your area. Check out the the iNaturalist website to learn more.

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K–2 GRADE EXPLORATION

Here are some questions you can explore together:

· Look carefully at a butterfly using your mud puddle station. Can you see what body part the butterfly uses to drink the minerals from the mud? What does it remind you of?

· Do you notice different kinds of butterflies at your mud puddle station? What kind of colors and patterns do you notice on the butterflies' wings? What else do you notice?

· Where else do you see butterflies in your neighborhood?

· Make a drawing of one of your mud puddle visitors in your science notebook.

Butterfly Probiscus

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3 – 5 GRADE EXPLORATION

- Observe a butterfly (or other insect) at your mud puddle station for at least 5 minutes. Use drawings and/or words to record your observations in the spot below, or in your science notebook.

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3 – 5 GRADE EXPLORATION *continued...*

· Keep a table of the number of butterflies you see with the date/time.
  Try keeping track every day for at least one week.

Date	Number of butterflies at mud puddle station	Other Observations

· Are there any patterns to butterfly activity around your mud puddle
  station? Do you notice more butterflies in the morning, afternoon, or
  evening? How does the weather affect the frequency of butterfly puddling?
  What other patterns do you notice?

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6–8 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- Observe your mud puddle station for several days. What do you notice about the amount or rate of butterflies using your mud puddle station? What patterns can you notice? What other factors might affect the abundance or lack of butterflies at your station?

- Pick one variable that you would like to test (for example, adding a fruit feeding area, using different types or amounts of salts, placing mud puddle in the sun or the shade, etc). Write down your research question and your hypothesis.

Research Question:

How does _____ affect the rate of butterfly puddling?

Example: How does **adding a fruit feeding station** affect the rate of butterfly puddling?

- What do you think will happen by changing this variable? Record your hypothesis.

I think _____

because _____

_____

- Set up your research test. Make a second mud puddle station with a similar amount of dirt and water as your control mud puddle station. Change one variable, for example:
    - Adding more or less salt
    - Using a different type of salt
    - Adding sugar to the soil mix
    - Placing mud puddle station in sun vs shade

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6–8 GRADE EXPLORATION *continued...*

· Observe both stations for about a week. Record your observations in the table below or in your science notebook.

Date	Number of butterflies at CONTROL mud puddle station	Number of butterflies at TEST mud puddle station Variable: _____

· What do you notice from your data? Does it support your initial prediction? What other factors might have affected your results? What would you do differently for your experiment next time?