

ACTIVITY GUIDE



EXTREME EVENTS: A STORY OF URBAN RUNOFF

Climate change is expected to bring more severe rainfall events to Pittsburgh. Participants experiment with green infrastructure options to ease the pressure on city sewer systems.

IN THIS KIT

- 2 Paint trays painted to represent a city or neighborhood block and nearby river
- 4-6 Lego buildings with magnets glued to bottom
- Sponges of assorted sizes and colors
 - Smallest sponges = rain barrels
 - Next smallest = green roofs
 - Next largest = rain gardens/bioswales
 - Largest = parks and green spaces
- 4 containers for sponges with laminated green infrastructure information cards
- 2 toy watering cans
- 2 measuring cups holding 1-2 cups of water

IN THIS KIT (continued)

- Yellow and brown foam dots (sewage, optional)
- Strainer
- Container to hold water (empty, must be filled before heading to event if no water provided there)
- Activity sign protected in plastic display

BIG QUESTIONS

- How does green infrastructure help cities cope with extreme rainstorms?
- What type of green infrastructure is most effective?

HOW TO SET UP

- 1) Fill big container with water before event
- 2) Place Lego buildings in blank spaces on paint trays.
- 3) Sprinkle foam dots in PVC pipe, representing sewage in sewer (optional)
- 4) Place sponges in proper containers (orange: rain barrels, blue: green spaces, purple: rain gardens, green: rooftop gardens)
- 5) Place measuring cups and watering cans on table.

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EXTREME EVENTS

FACILITATION GUIDE

(This works best if children are directed to the activities, while caretakers are engaged in conversation and display information. This script is written for one visitor at a time but can be adapted for groups.)

- Hi! Do you want to make a thunderstorm?
- This is a simple model of Pittsburgh's response to storms. We'll all experience more storms and heavy rainfall in the future due to climate change.
- Imagine this is a city block. What do you see here? What do these items represent in our model?
(Range of responses expected—tray represents impermeable surfaces; Legos are buildings; blue painted area is one of the local rivers; PVC pipe is our sewage system. Yellow and brown dots are sewage (poop and pee).)
- Today, our storm will be 1 cup of water. Could one of you measure it for me? Thanks! If you make your storm across the whole neighborhood, what do you predict will happen?
(Allow time for responses; most will say that all or most of the water will end up in the "river.")
- Let's pour that cup of water into our "rainmaker" and make it rain!
(Emphasize making it rain on the city and not in the river. Even though naturally everything gets rained on, we're measuring runoff so we care about seeing what happens to the rain that lands on the city.)
- What happened? Where did you see water flowing in the model? Does this look similar to anything you've ever observed during real rainstorms?
- Let's measure how much water ran off. What's your prediction?
(Allow time for responses. Take buildings off of tray and pour water into measuring cup, letting visitor measure the result. If foam dots were in the "sewer", use the sieve to filter them out while pouring into measuring cup. Note that one cup of rain in this situation should make the "sewers" overflow into the "river")
- Why did all of the water end up back in our measuring cup?
- Now it's your turn to be a civil engineer and make some design decisions. These sponges represent different types of green infrastructure—tools like plantings and rain barrels that act like sponges to soak up water BEFORE it gets to the sewers.

EXTREME EVENTS

FACILITATION GUIDE

- Take a minute and design a city with enough green infrastructure to make something different happen if we run the same experiment with one cup of water.
(Time for sponge placement, chatting about decisions, what green infrastructure is, etc.)
- What do you think will happen this time if another storm of one cup of water hits our model city? Let's find out! It's your turn to be the rainstorm this time.
(Hand cup to another visitor)
- Let's measure how much run-off there was this time. How much is in the measuring cup?
(Take the buildings and sponges off the tray without squeezing any of the water out of them, and measure the water in the tray. Discuss responses. Fewer, if any, of the foam dots should have ended up in the river.)
- So what happened? What was different this time? What helped make our storm less destructive?
- This is especially important in Pittsburgh because climate change is predicted to bring more extreme storms. Do you know of any organizations that are trying to help citizens, businesses, and governing bodies add green infrastructure to their properties? If not, here are some ways you can get involved in Pittsburgh.

FINISHED KIT



ABOUT CUSP

CUSP helps urban communities explore climate impacts and solutions through active engagement with local examples.

