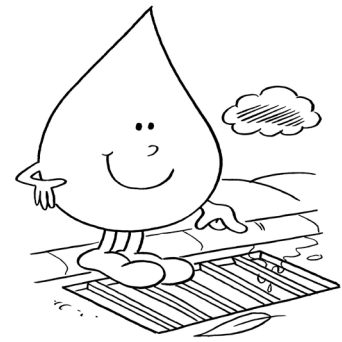


Where does stormwater go at school.



Things you will need

- Search Google for images of structures associated with carrying or catching stormwater. (use terms such as gutters, storm drain, downpipes, grates, soak wells, rain tanks, pipes, flood basin etc.)
- Computer with internet access
- Large sheets of construction card to place models on
- Cardboard (old cereal boxes work well)
- Other recycled materials may also be useful such as yoghurt pots, straws, etc.
- Poster paints and paint brushes
- Sticky tape, glue, scissors or craft knives.

Lesson description

Note: If the end point for the stormwater from the school is not obvious the local authority may be able to provide details or a map showing where stormwater flows to after it leaves the school grounds. Mapping of stormwater drainage is sometimes available on the local council's website using IntraMaps.

- Explain that the drainage system carries stormwater from roofs, roads and buildings through gutters, drains and channels, and discharges into creeks, rivers, lakes, wetlands or the ocean, or the water may seep into the ground to become groundwater.
- Show images (E.g. using Google) of gutters, downpipes, soak wells etc.
- Students make predictions about where rain water starts and finishes at school. List predictions on the board.
- Take a trip around the school and identify the path that rainwater takes from the start to the exit from school property. The path will include the roof, gutters, downpipes, possibly rainwater tanks, grates around buildings without gutters, and grates leading to drains. Students draw a mud map of the stormwater system as they go.
- Examine grates around the school that are not connected obviously to feeder pipes and discuss their purpose. Where does the water come from that feeds into this grate? These grates are usually clearing water in low lying hard surface areas where rainwater collects, for example in a car park.
- Identify the end point for the stormwater. Look for a compensating basin (fenced off depression that is used to collect stormwater), a sump (a low lying area where water is allowed to collect so that it seeps into the ground and also evaporates back into the atmosphere), drains that feed into a local wetland or creek, or pipes that feed water into street drains.
- Discuss environmental issues such as pollution from litter, dumping of chemicals, run-off of fertiliser etc.

Curriculum Links

Science

- Science involves making predictions and describing patterns and relationships. (ACSHE050) (ACSHE061)
- Science knowledge helps people to understand the effect of their actions. (ACSHE051) (ACSHE062)
- Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports. (ACSIS060) (ACSIS071)

Learning Objectives

Students can:

- Predict the stormwater path and describe the relationship between stormwater structures.
- Examine the stormwater drainage system at the school and represent their findings through the construction of a model.
- Describe the stormwater path and name its parts.

Student activity

- Back in the classroom students work in groups to make a model of one of the school buildings showing its stormwater system (E.g. gutters, downpipes, rain tanks, stormwater drains etc). Students should check their model against their mud maps.
- Groups join their models together to form an overall model of the school. You may want to add in elements that show the destination of the stormwater (E.g. add in a local wetland, a compensating basin, or sump).

Reflect and summarise

- Review initial predictions. Were we right?
- Ask students to explain to you where the water starts in the system, where it finishes and what happens to the water after it has left the school.
- Discuss ways to keep the stormwater system free of pollution.

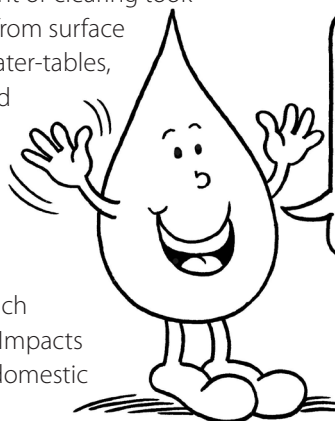
Extension Activities

- Investigate, design and present plans to the Principal for a rainwater garden bed. View YouTube 'Eltham High Students - Stormwater Winners' (2:33)
- Invite SERCUL to run a drain stencilling incursion, see sercul.org.au

Teacher background information

A catchment area is an expanse of land that intercepts water and from which it flows to a certain point, either on the surface or underground. A catchment area might include a lake, a reservoir (or dam), a stream or any other water body, and areas where water soaks into the ground and recharges as groundwater. The school is a catchment area that may involve two or three sub-catchments; e.g. a car park, basketball court, school oval, gardens. Rainfall seeps through soil into the water-table, where it collects in groundwater aquifers. Pollutants spilled on the ground, or leaking from storage vessels, have the potential to contaminate groundwater aquifers, through seepage. Groundwater contamination in the shallow aquifer system can endanger community health and threaten the environment, especially the fauna and flora of wetlands.

Drainage systems consist of pipes or open-channel drains that convey stormwater runoff and groundwater to natural water bodies such as rivers, wetlands or the ocean or to compensating basins. They often follow the route of natural watercourses that existed before any land development or clearing took place. Drainage systems prevent flooding of developed land from surface runoff and from rising groundwater levels. In areas or high water-tables, drainage systems lower the groundwater level so that the land can be developed. Stormwater is not treated and in some cases leads directly to our water bodies such as rivers, lakes, wetlands or the ocean. Or the water seeps back into the ground and is taken up by plants, evaporates or gradually trickles down into the groundwater. Stormwater runoff easily collects pollutants along its path. There are many ways in which human activity impacts on water draining from a catchment. Impacts include; litter, dumping of oil, paint and solvents, dog waste, domestic fertiliser run-off and oil and fuel from cars.



Australia's rainfall is the lowest of all inhabited continents, however it has some of the wettest areas on Earth.

Websites

- YouTube 'Eltham High Students - Stormwater Winners' (2:33)

Key Vocabulary

- Sump: a pit or soak well for the reception of water or other liquids.
- Soak well: a collection pit for surface and subsurface stormwater
- Catchment: the surface area from which runoff flows to a river, a dam or a wetland, sometimes via drainage systems.
- Drainage system: a channel or pipe, above or below ground, that conveys stormwater.
- Stormwater: rainwater which has run off roads, roofs, paved areas etc. and is conveyed by constructed drains.
- Compensating basin: a basin that provides temporary storage and reduces water flow to avoid flooding (sometimes referred to as a sump).

Related Lessons

Search 'stormwater and waterways' on watercorporation.com.au