

Sand Waves

Have you ever noticed how the patterns in sand dunes look like waves? Explore how different sand dunes are formed, move and the effects of sand dune migration. Engineer a solution to help prevent sand dune movement through a coastal city.

TEKS:

4.7B Observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice.

5.7B Recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice.

How To

Materials:

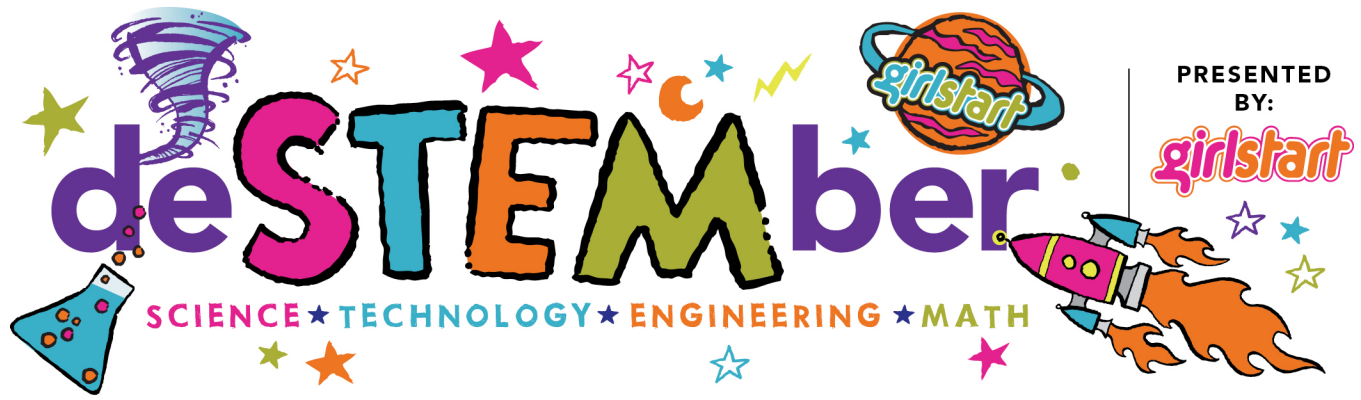
- Aluminum trays
- Craft sticks
- Flexible straws
- Lego pieces
- Natural materials (sticks, rocks, etc.)
- Sand (36 oz. per tray)
- Tape

1. Fill each tray with 36 oz. (four small cupfuls) of sand.
2. Arrange students into groups of 3-4, with one tray of sand per group.
3. Have students take turns blowing gently through straws to form four different types of sand dunes:
 - a. Parabolic Dunes – Aim straw at one point and blow
 - b. Longitudinal Dunes – Blow over the sand in sweeping side-to-side motions
 - c. Star Dunes – Hold straw perpendicular to sand, blow in erratic, inconsistent motions
 - d. Arc Dunes – Combine 3 or 4 straws, blow over the sand in an arc pattern
4. Explain that the wind causes sand dunes to migrate, or move across the land (they may have observed this when creating their own dunes).

31 Days of STEM FUN!

www.destember.org | [#deSTEMber](https://twitter.com/deSTEMber) | © 2013 by Girlstart www.girlstart.org

DeSTEMber is a trademark of Girlstart



Sand Waves

How To Continued...

7. Have students set up a “town” with the Legos on one end of their tray, then brainstorm ways to protect the town from migrating sand dunes.
8. Let students build their protective designs from craft sticks, tape, and natural materials.
9. Have students test their designs by blowing sand dunes towards the town and seeing if their obstacles prevent the dunes from covering the town.

Why Does it Work?

Sand dunes form naturally from different patterns of wind. The force of the wind often causes them to migrate across deserts. Migration can be slow (one of the fastest known migrating dunes moves about 100 feet per year) but it’s also difficult to stop. Since ancient times, desert civilizations have built walls and other obstacles to prevent migrating dunes from burying their towns.

Career Connection:

Geologists study Earth, the materials of which it is made, the structure of those materials, and the processes acting upon them. Many of the processes include earthquakes, volcanoes, landslides, and floods. An important part of geology is the study of how Earth’s materials, structures, processes and organisms have changed over time.

Resources: <http://geography.howstuffworks.com/terms-and-associations/sand-dune1.htm>

<http://pubs.usgs.gov/gip/deserts/dunes/>

<http://www.nps.gov/grsa/naturescience/dune-types.htm>

31 Days of STEM FUN!

www.destember.org | [#deSTEMber](https://twitter.com/deSTEMber) | © 2013 by Girlstart www.girlstart.org

DeSTEMber is a trademark of Girlstart