



A Pixel of Data

With colored pencils and graph paper, learners will observe the land cover and develop a color-coded key to record the land cover type(s) observed.

Purpose

To provide learners an opportunity to explore, observe, scientifically identify, and record the land cover of a 30-meter x 30-meter section of their land cover site. This is equal to one pixel of Landsat data. This plot needs to be representative of the general type of land cover that is prevalent of their overall site location.

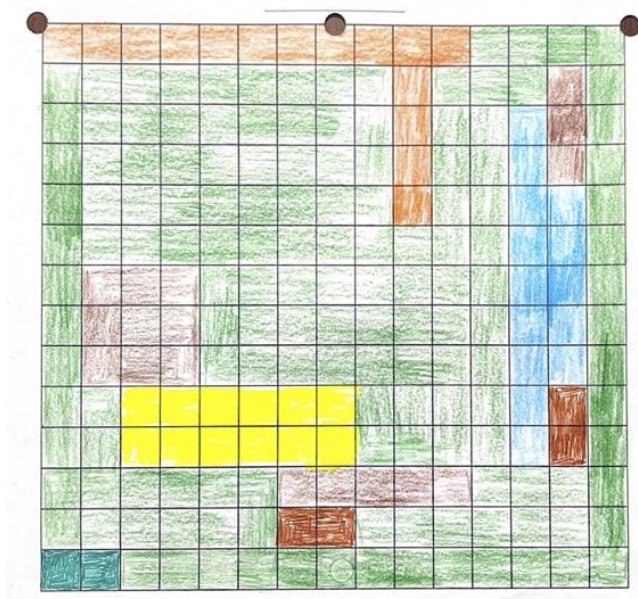
Time

Part 1: Approximately 45 minutes

Part 2: Approximately 20 minutes

Materials

- Observation Journals
- [Land Cover Quick Reference Guide](#)
- Colored Pencils
- Graph paper
- Measuring tape and flags to mark the area
- Magnifying glasses (optional)
- Camera (optional)



Safety

Instructors should find a safe location with few obstructions, free of traffic, downed trees or other hazards.

Background

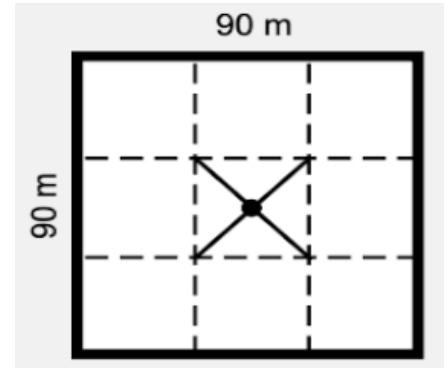
Land cover is a general term used to describe what is on the ground covering the land. Land cover influences weather, soil properties, and water chemistry. Different land cover types are all distinct in their effects on the flow of energy, water and various chemicals between the air and surface soil.

Land cover influences the way water flows or is absorbed, potentially leading to floods or landslides. Changes in land cover matter because land cover can alter temperatures and rainfall patterns. Some types of land cover absorb carbon from the atmosphere, and when subject to changes, such as a forest burned in a wildfire, result in more carbon entering the atmosphere. Improved land cover maps will provide a better baseline to study all of these factors at both global and local scales, particularly as scientists integrate improved land cover maps into global models.

What to Do

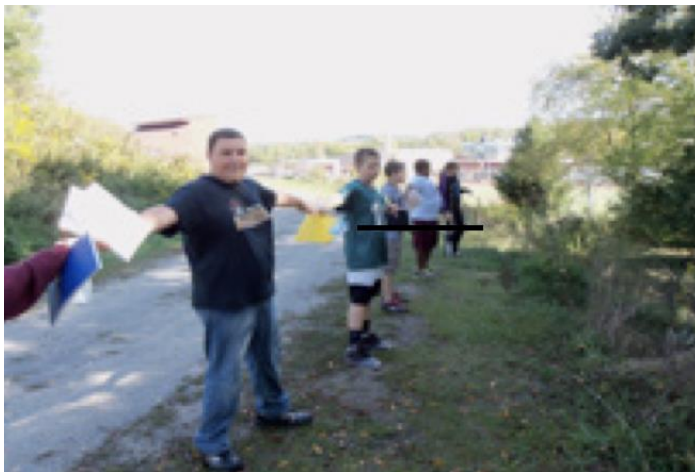
Preparation:

Locate a safe space and mark a 30-meter square. If you wish to collect a complete GLOBE data set for your land cover site, you will need to do this for a 90-meter square plot.

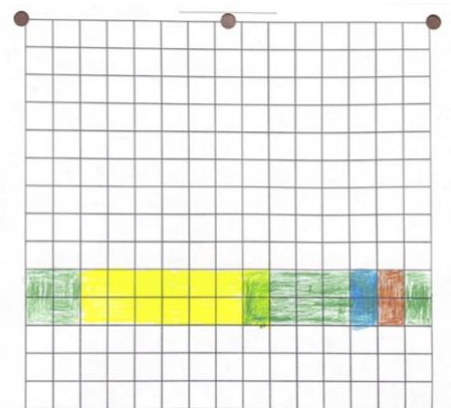


Part 1: Investigation

1. Have learners sketch the land cover in the designated space.
2. Have learners stand side-by-side in a line. Each student receives a piece of graph paper. Out in the field, students line up side-by-side, both arms extended out from their sides.
3. Learners then number off from left to right. They are assigned the same number row on their graph paper to record their observations.



4. Together as a group, they take one step forward, look down, observe and record the type of ground cover and any other observations the group is collecting, such as soil temperature. They will use the Land Cover Reference Guide to identify the type of land cover.
5. Continue until the learners have gone across the whole 30-meter square site.
6. Photograph the stages of this activity, if desired.



Part 2: Discussion/Combining and Coloring Final Map

1. Collect the graph paper and have the learners combine the group's observations on one piece of graph paper or onto a large white board.
2. Discuss the observations, comparing and contrasting variances in land cover types.
3. Using the Land Cover Reference Guide, create a colored key of the data represented in the pixel of land.

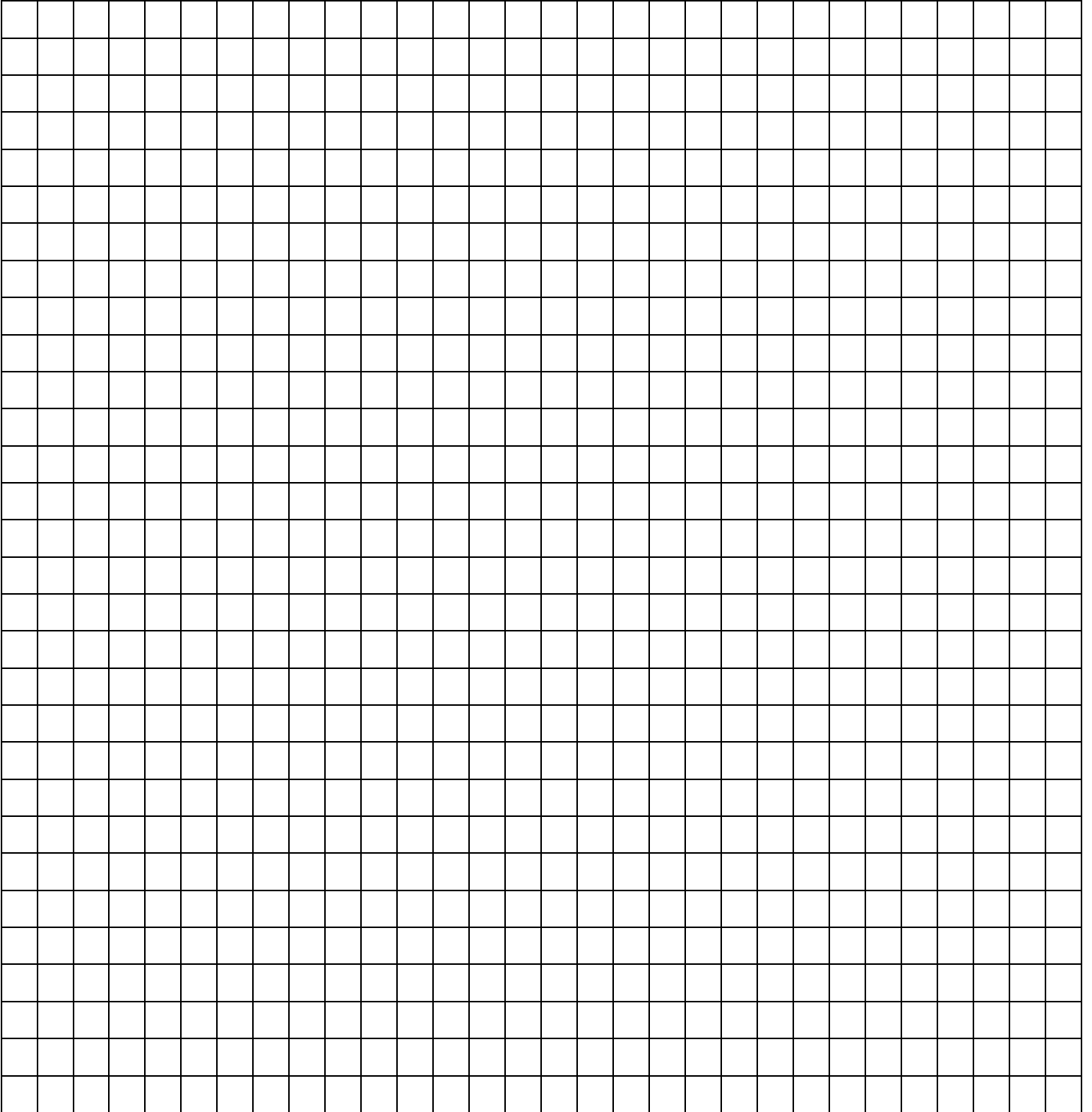
Questions for Review

1. What were the main types of land cover found at your site?
2. How do these types of land cover compare to where you live?
3. When collecting land cover data, the Landsat satellite identifies one pixel at a time based on the land cover most represented within a 30-meter square. Based on your findings how do you think the Landsat satellite would classify the land cover found within the one pixel of data you collected?

Acknowledgements

This resource was adapted by the NASA Earth Science Education Collaborative (NASA award NNX16AE28A) for GLOBE Goes to Camp. It is based on the [GLOBE Observer Pace-a-Pixel](#) activity.

30x30 Grid



15x15 Grid

