

Construction and Cartography

“Maps encourage boldness. They’re like cryptic love letters. They make anything seem possible.” –Mark Jenkins

Background Information:

Bin Information

This is the second activity in a series of outdoor recreation activities designed to foster empathy with nature, connection to local landscapes, and future positive environmental behaviors. It is preceded by a nature play activity for young students to form early connections with nature and followed by an activity for older students to evaluate what is appropriate usage for different public lands.

The purpose for this lesson is to build a connection to local lands and a sense of place through both mapping what is important in the area to students and giving them a chance to manipulate and take ownership of their environment.

Materials and Set-Up:

This kit includes:

- Tarps (3)
- Rope
 - 15ft hank (3)
 - 5ft hank (12)
- Graphing paper

You will need:

- Clipboards or other writing surfaces
- Writing utensils for each student
- Compass (optional)

Set-Up:

- Scope out an area to have fort building. If your group does not have access to any suitable private land, consider looking at some public areas that would be suitable for

Introduction:

Estimated Duration: 10 minutes

Author:

Dominique Menard

Themes:

Exploration, Outdoor Recreation,

Estimated Duration:

60-90 minutes

Audience Identified:

2nd-5th Grade

Location:

Natural outdoor area

Goal:

Students will use mapmaking and fort building to connect further to their local landscapes.

Objectives:

Students will create a map that places areas that are important to them into a larger geographical context.

Students will construct forts.

Students will map out the forts that they have made in relation to those of their peers.

Attention Getter

Any established group or classroom attention-getters can be used to regain the attention of the students when giving directions for transitioning activities. If you choose to use an attention-getter personalized to this lesson, introduce the following before introducing the lesson:

- The instructor calls out either “Mapmakers?” or “Fort builders?”
- The students must call back “Cartographers!” or “Construction!” respectively

Practicing this attention getter can also be a short game in trying to ‘fool’ the students into saying the wrong one back.

Warm Up

To start this lesson, hand out graphing paper to students. Let them know that they will have a set amount of time to draw a map of their area. They may choose the scale for this project from being as small as their backyard to the places that they would visit in an average week, to the larger community. It does not need to be very detailed, as it is a quick project. When they are done, have them find a partner to share with and see if they included any of the same places.

Let students know that you all share some things because you are a part of the same community, but there are also a lot of differences. In a little bit, you will be making another little community and mapping that one as well. Prepare to transition outside if you haven’t yet.

Content and Methods:

Estimated Duration: 40-60 minutes

The body of this activity is fort building. Fort building is an opportunity for students to manipulate their environment. They can choose to work with a partner, a small group, or alone. Students can also work to make their own types of forts, but below are listed some potential options that instructors can help steer students towards.

Before beginning, make sure that as an instructor you evaluate how long the forts can remain and communicate that clearly with the group before beginning to build so there are not hurt feelings when dismantling. In some circumstances, the forts may remain for a few days or even weeks, whereas in other circumstances, they may need to be dismantled immediately after mapping out the fort village.

Lean-To

In an area with available fallen sticks, a lean to is a popular fort to construct.

Building

- Find a spot to construct your lean-to. If possible, use a fallen tree or a large rock to act as a ‘spine’ or support.
- Stack large sticks at an angle against the spine. These will be acting as the ‘ribs.’ Add more sticks to add structure as needed.
- Fill in the gaps with branches and foliage.



- When collecting materials, make sure to only grab wood that is dead and down. Don't take anything from live plants, remove bark from standing trees, etc.

Dismantling

- Take down the branches and sticks and scatter all the materials. As much as possible, return things to the same general location they were taken from. It may help to let students know that they are giving their shelter back to be shelter for many small critters.
- "Fluff the duff" by scattering and fluffing up pine needles and fallen leaves so they do not appear trampled by feet.

Snow Shelters

Snow shelters are a great option in winter if there is snow available. Snow can also be combined with sticks to create shelters that are hybrids between the two.

Building

- Older students may be interested in learning to build a quinzhee. For this snow shelter, begin by piling up snow into a large heap, and stomping it down so the pack is tight throughout. (Ideally let the pile sinter, which means to let it sit and settle for a few hours as well)
- Take sticks and jam them in two feet deep in various spots on the snowpack.
- Start on the bottom and dig into the snowpack to start making a cave. If at any point in the digging you hit the bottom of one of the sticks that were stuck in, stop. This will ensure that all of the walls for the quinzhee are thick enough.
- Once the quinzhee is hollowed out, make sure to add another smaller hole besides the doorway so that air can circulate through. At this point, for a more serious quinzhee, leave a candle to burn inside for about an hour. This will create a layer of ice on the inside that will help to stabilize it. For a short term shelter, this is not necessary.
- Because there is a risk of snow collapsing on top of students with this structure if safe practices are not followed, it may not be a good choice for students who are young, if they are prone to panic, or if there is not extra time to devote to the activity. For those groups, dig and pile snow to make shelters without roofs.



Dismantling

- Most of the time it is acceptable for snow structures to stay built, but if they are visible from a public train, or if a quinzhee is built but is not structurally sound and becomes an attractive nuisance, they should be dismantled. Stomp the snow down so the structures are flattened and kick the snow to disperse it.

Tarp Shelters

Tarp shelters are a good option if there is a lack of materials available, or when attempting to have a lower impact on the area. However, the tarp shelters do require some knot tying, which can be trickier for some younger students who are unfamiliar.

Building

- The simplest tarp shelter for kids to construct would be to run a length of cord between two trees. Wrap each end several times around the trunks and tie it off with any stopper knot. Make sure that the line is tight. This is your ridgeline.
- Toss the tarp over the ridgeline to make a triangle. Set stones on the bottom edges to help keep them in place. Students can also use other tools or skills to make more elaborate tarp structures.



Dismantling

- For dismantling, take down the tarp, shake it off, then fold it. Remove the cord and wrap it up before replacing in the bin.

Conclusion:

Estimated Duration: 10 minutes

The conclusion can take place either back in a classroom space, or in the fort area with clipboards or another hard writing surface available. For the conclusion, the students will mirror the introductory activity and create another map. This time however, they will all be making maps of the fort area. They should include their structure in relation to that of their peers. The maps can include such things as the name of their structure, other notable landscape features, and if a compass is available, they can use it to orient their map to north.

Reflection and Evaluation:

Estimated Duration: 10 minutes

Reflection

For the reflection for this activity, when students are finished with their map, they should find at least three other students and share their maps when they do this they should answer the following questions:

- What looks the same on the maps?
- What looks different on the maps?
- Is there anything you want to add or change based on what you learned from seeing someone else's map? (including specific information about their structure learned from talking to peers)

Students may choose to update their map accordingly during the reflection.

Evaluation

Evaluation for this activity takes place by observing students during the mapmaking and fort building. If they are engaged and participating to the best of their ability, they are considered to be successful. The

maps can also be collected at the end for further evaluation if there is specific criteria that instructor asks the students to meet.

Extensions:

Accessibility and Accommodation

Indoor Adaption: If an outdoor area is not available for this activity, or there is unsuitable weather, an alternate adaption could include making indoor forts with furniture and blankets. While this is not as beneficial for the connection to the land, the benefits from mapping the areas can still be gained.

Locations

This whole lesson can take place outdoors with clipboards or other hard writing surfaces available for the mapmaking activities during the warm up and conclusion, or the warm up and conclusion can take place in a classroom. Make sure to allow extra transition time if this is the case or split up the three parts. If they take place in sequence, it is not necessary that they directly follow each other.

Further Mapping Activities

David Sobel's book "Mapmaking with Children" provides excellent information on how to use mapmaking to teach several key concepts from across disciplines and includes developmentally appropriate lessons and activities.

Fort Building Extensions

Instead of having everyone build forts, another option for the building option would be to allow students to also create 'landmarks' like a snow sculpture or temporary nature art that could also be included on the map. Students could also plan ahead of time to create a town where each structure fills a different 'need' like a school or store. This option is best if the forts can be at least semi-permanent with an opportunity to return for free play.

This lesson could easily be extended time wise to be a half or full day activity.

Reference Materials:

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