Cloud Cover Estimation

Working in pairs or small groups, learners use construction paper to simulate cloud cover. They estimate the percentage of cloud cover represented by torn pieces of paper on a contrasting background and assign a cloud cover classification.

Purpose

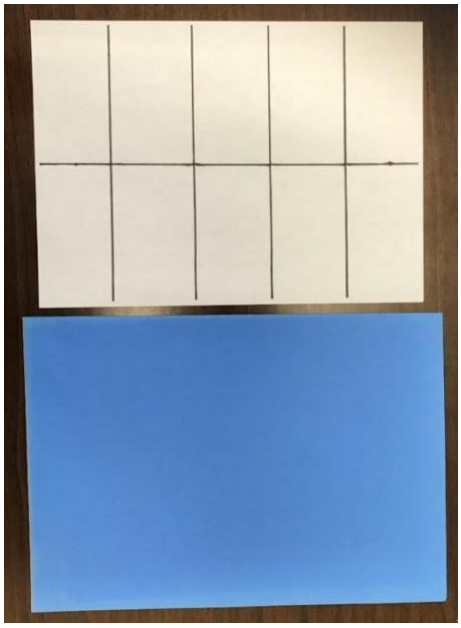
The purpose of this activity is to help learners understand the amount or **percentage** of the sky that is covered in **clouds**. Learners will gain skills to more accurately **estimate cloud coverage** in the sky.

Time

30 minutes

Materials

- ☐ 1 piece of blue paper per learner or group
- ☐ 1 piece of white paper per learner or group (same size as the blue paper)
- ☐ Cloud Cover Classification Chart (included below)
- ☐ Scissors
- ☐ Non-toxic glue and/or tape
- ☐ Pencils or markers
- ☐ (Optional) Ruler



Safety

Ensure that learners know how to use scissors safely. Reminders such as cut away from your body, look at what you are cutting, only touch the handle and close the scissors when finished may be needed. Proper glue use guidelines would include to only put glue on the paper, not on clothes and especially not near one's eyes.

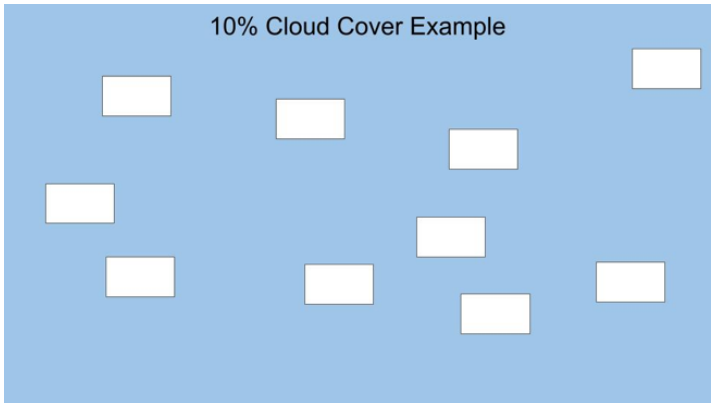
Background

Estimation of cloud cover can be tricky, because not all clouds are the same shape nor are they evenly distributed in the sky. Working in pairs or small groups, learners use construction paper to

simulate cloud cover. They estimate the percentage of cloud cover represented by torn pieces of paper on a contrasting background and assign a cloud cover classification. See the chart below. Learners will evaluate the accuracy of estimates and use fractions and percentages. As they gain experience looking at cloud cover on paper, the learner will be better equipped to estimate cloud coverage in the sky.

What to Do

1. Ask learners what they notice first when they look at the sky? Do you see the white clouds or the blue color of the sky?
2. Ask why they think it is difficult to accurately determine the percentage of cloud cover? Discuss the fact that our eyes focus first on the white in the sky which complicates our ability to accurately estimate total cloud cover.
3. Learners will make a cloud scene on paper which will resemble the sky using the materials provided.
4. Divide their white piece of paper into 10 equal sections. They can do this by folding the paper or by drawing 10 equal sections (a ruler may be used if needed). Each section will represent 10% or 1/10th. For younger learners, use smaller fractions such as ½ or ¼.
5. Learners will need to choose the percentage of clouds they want to put on their blue paper (10% - 100%). Cut or tear out the percentage of white paper they want to use. Recycle the remainder.
6. Tear their chosen paper amount into pieces of any size and shape and glue/tape it onto the blue paper. Do not overlap the clouds.
7. Write the percentage of cloud coverage and the cloud cover classification on the back of their blue paper.
8. Have each learner share their cloud picture to the larger group. See if the group can accurately guess the percentage or fraction of cloud coverage in each picture as well as the cloud cover classification.



Questions for Review

1. Were the learners able to accurately guess the cloud percentages? Why or why not?
2. Did they tend to overestimate or underestimate the cloud coverage?
3. What factors influenced the accuracy of the estimates (e.g. size of the clouds, clustering of the clouds in one part of the sky, the percentage of sky that was covered)?
4. Did the learner's ability to estimate cloud coverage improve as they saw more pictures? Why do they think this happened?

Key Words

Cloud: a visible mass of water droplets, ice crystals or a mixture of both in the air

Cloud Coverage: percentage of the sky obscured by clouds

Cloud Cover Classification: a five-tiered rating system to group clouds by their amount in the sky

Estimation: an opinion or to guess as to something's approximate size or amount

Percentage: a number or ratio that can be expressed as a fraction of 100

Extension

Practice observing cloud coverage outside. See if the group agrees on a percentage or cloud cover classification.

Acknowledgements

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Few < 10


Isolated 10 - 25


Scattered 25 - 50


Broken 50 - 90


Overcast 90 - 100