

## **EXPLORING STEEPNESS**

**Transparency #5: Exploring Steepness**

**Activity #6: Exploring Steepness**

Have participants sketch stair steps with the given steepness. Allow time for participants to compare and contrast the sketches with members in their group.

### Questions for Discussion

- Are all the sketches exactly alike?
- What is different about some of the sketches?
- Do some of the stairs seem to be going up whereas others are going down?
- What happens to the stairs when the numerator of the steepness is less than the denominator?
- What happens to the stairs when the numerator of the steepness is greater than the denominator?
- What happens to the stairs as the values of the numerator and denominator get farther and farther apart?
- What happens to the stairs as the values of the numerator and denominator approach the same number?
- What happens to the stairs when the numerator and denominator are the same number?

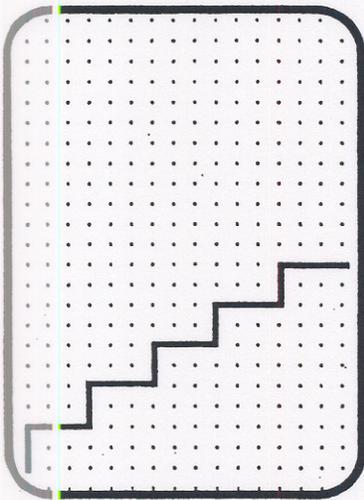
**Transparency #6: Identifying Steepness**

**Activity #7: Identifying Steepness**

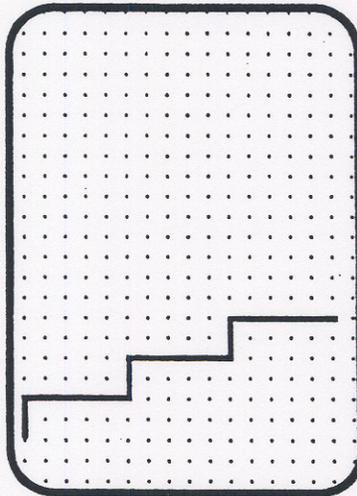
Use this activity to connect several ideas with the Instructional Model and the Learning Model. The first activity (Measuring Steepness) provided an opportunity for the teacher to demonstrate concretely how one measures the steepness of an object or a land form. While the instructor modeled, the student's role was observing. Then participants were allowed to measure the steepness of several objects while the instructor facilitated. Not only is the concrete representational level addressed in this activity, but also the algebraic level. Participants are required to express steepness in an algebraic form (ratio).

## EXPLORING STEEPNESS

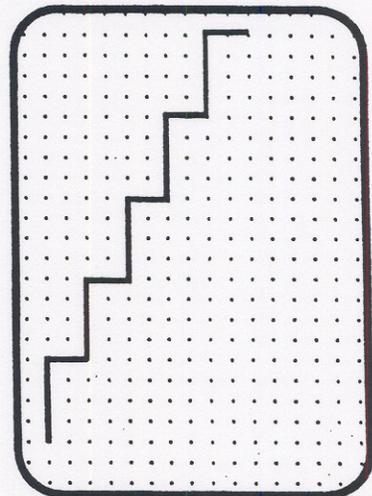
Make a sketch of stair steps with the given steepness. The steepness (ratio) is vertical measure compared to horizontal measure.



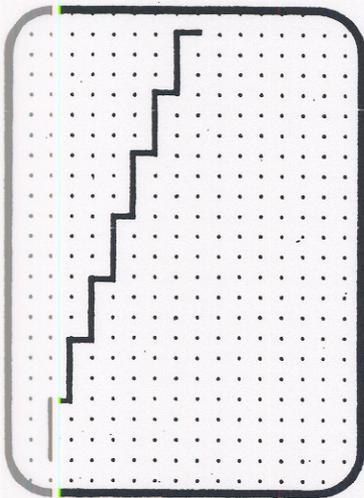
steepness =  $2/3$



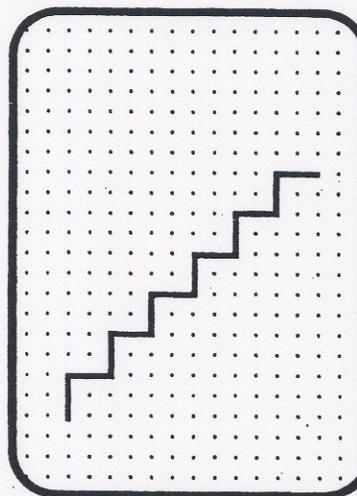
steepness =  $2/5$



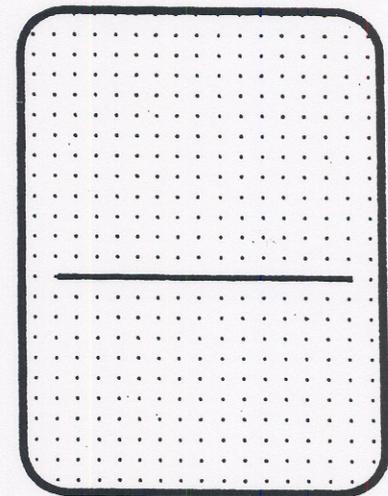
steepness =  $4/2$



steepness =  $3/1$



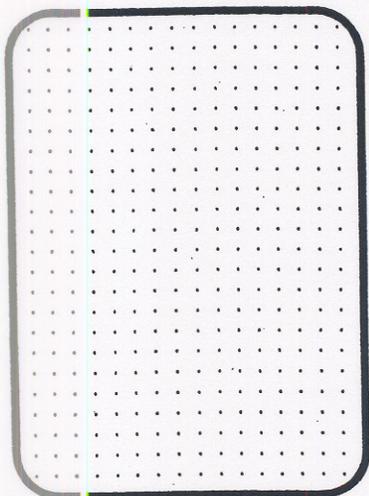
steepness =  $2/2$



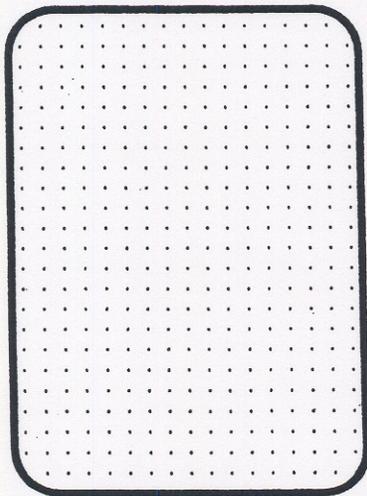
steepness =  $0/2$

## EXPLORING STEEPNESS

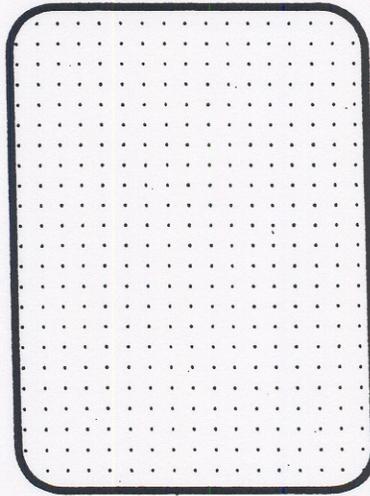
Make a sketch of stair steps with the given steepness. The steepness (ratio) is vertical measure compared to horizontal measure.



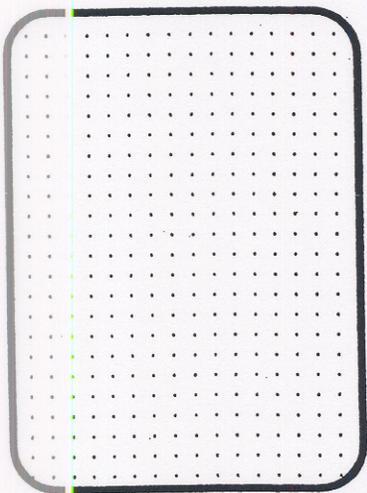
steepness =  $2/3$



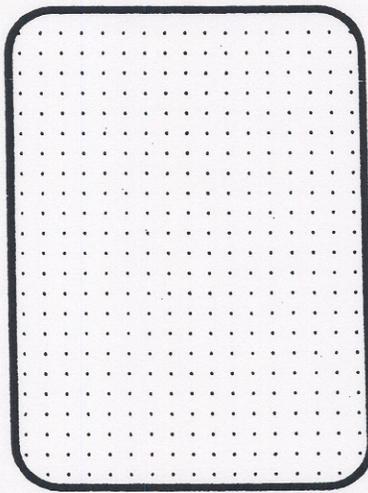
steepness =  $2/5$



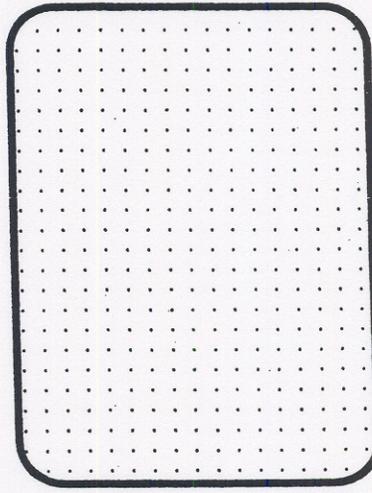
steepness =  $4/2$



steepness =  $3/1$



steepness =  $2/2$



steepness =  $0/2$