Lines, Rays, and Segments – Grade 3 & 4 (3MG2.0 & 4MG 3.1)

Preparation: Chalk, three long ropes, five short ropes, hula hoop, posters with definitions.

Introduction: Take a tour of the school playground and ask students to identify what they think is a line, a ray, or a line segment. Try to gather as much prior knowledge as possible in the discussion.

Example 1: Have two students stand back to back holding one end of the rope and a piece of chalk and begin walking forward until the teacher says stop.

Ask the whole class what the two students would need to do in order to represent a line? Define line: a straight set of points that extend in opposite directions without ending.

You-Try 1: Have two students place rope on the ground and draw an arrow at each end to indicate it is a line.

Example 2: Have two students do the same as example 1 students. Once the teacher says stop ask the whole class what the two students would need to do in order to represent a line segment.

Define line segment: is a part of a line between two endpoints.

You-Try 2: Have them place the rope on the ground and draw an endpoint at each end to indicate it is a line segment.

Ask the class some questions:

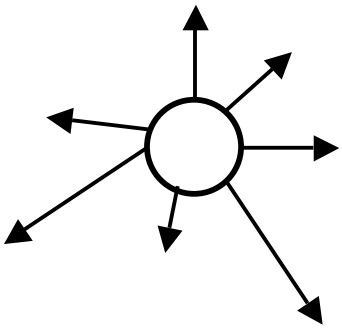
1. Where do we see lines in our world? [play ground – four square, tether ball, football and soccer fields, basketball courts, streets, sidewalks, etc…]
2. Where do we see lines in math? [number lines, shapes, angles, etc…]
3. Is it possible to have a line segment on a line? [yes] – move the line segment to the top of the line on the ground to show them and write two letters to indicate the endpoints (like what you would see on a number line).
4. Where do you see this in math? [finding the distance of a line segment, points on a number line, etc…]

Example 3: Have a student stand in the center of a hula hoop that is on the ground. Ask the class what we could do to the ropes, that are attached to the hoop, to represent a ray?

What would we have to draw at the end of each rope to represent a ray?

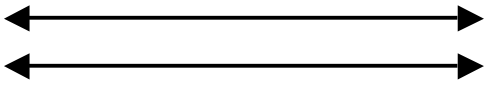
You-Try 3: Have students pull the ropes straight out from the hoop and draw an arrow at the end of each rope to represent each ray. [like the sun]

Define ray: part of a line that has one endpoint and extends in one direction without ending.



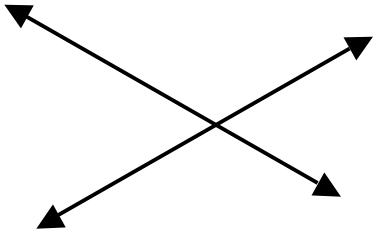
Example 4: Have four students hold two long ropes side by side to create parallel lines.

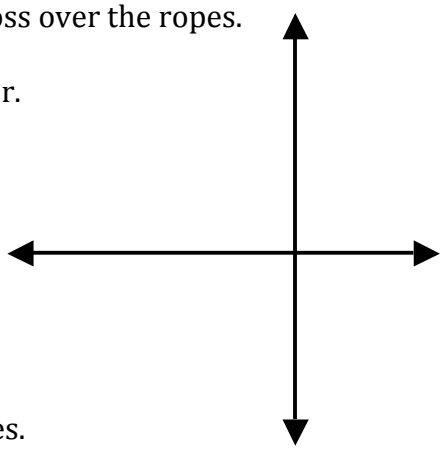
Define parallel lines: lines are always the same distance apart and they do not meet.



Example 5: Have four students hold two long ropes and cross over the ropes.

Define intersecting lines: lines that meet or cross each other.





Move the four students to form a right angle with their ropes.

Define perpendicular lines: lines that meet or cross each other to form right angles.

Walk the playground again and identify types of lines on the ground.

Individual Work: Work individually to list real-world examples for a line segment, parallel lines, and intersecting lines. On a sheet of paper make four boxes and in each box label with types of lines, draw a picture, and write the definition. (finish for homework or can be used as a quick assessment of the day's lesson)

(See Warm-Up below)

Date _____

Warm-Up

CST #16 N.S. 1.8	Review:
Kira owes Mark $5, and Mark owes Kira $7. Which statement means the same thing? **A** Kira owes Mark $2. **B** Kira owes Mark $12. **C** Mark owes Kira $2. **D** Mark owes Kira $12.	Solve more than 1 way: 24,593 + 16,861 =
Current:	**Other:**
Draw a pair of parallel lines.	What is the value of the 9 in the number 3,921,382? What is the value of the 3 in the number 3,921,382?

Today's Objective/Standard: Identify lines that are parallel and perpendicular. (3MG2.0 & 4MG3.1)