Lines and Illusionary Art

Part 1
Groups of:
- 3s or 4s count by consecutive odd integers starting at 1. Stop at 49.
- 4s or 5s count down by consecutive even integers starting at 8. Stop at -48.
- 6s or 8s

Part 2
- 4 pictures – 2 of illusionary/line art, 1 of parallel/perpendicular, 1 of y-intercepts x-intercepts and slopes
- 8 students around each set of 4 pictures
- Look, don’t touch, what do you notice? What else?
- Read Talking Points
- pick-up pictures, pass the picture and use talking points when discussing the pictures

Talking Points:

The elements of art include: shape, form, line, point, color, value, texture, and space. Artists use straight lines to create many types of designs including optical illusions.

Slope of a line – describes the steepness of line \( \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} \)

y-intercept - the point where the line crosses the vertical axis

x-intercept – the point where the line crosses the horizontal axis

parallel lines – lines that will never intersect (cross) – their slopes are the same

perpendicular lines – lines that intersect at a right angle (90°) – their slopes are negative reciprocals (opposite sign, flipped fraction)

Part 3
Graphing/line art activity/assignment
PARALLEL AND PERPENDICULAR LINES

Parallel lines have the SAME slope.

Perpendicular lines have an OPPOSITE, RECIPROCAL slope.

\[ m = \frac{1}{3} \]
\[ m = -\frac{3}{1} = -3 \]

\[ y = -\frac{3}{2}x + 4 \]
\[ y = \frac{2}{3}x + 1 \]
Slope = \frac{\Delta y}{\Delta x}

\text{y-intercept:} \quad \text{Point where the graph crosses the y-axis}

\text{x-intercept:} \quad \text{Point where the graph crosses the x-axis}
Name: ___________________________ Hour: _______ Lines and Illusionary Art

1. Create a line segment with a y-intercept of (0,10) and a slope of \(-\frac{10}{1}\).
   What is the x-intercept? ___________
   Don’t extend the line segment beyond either intercept.

2. Create a line segment with a y-intercept of (0,9) and a slope of \(-\frac{9}{2}\).
   What is the x-intercept? ___________
   Don’t extend the line segment beyond either intercept.

3. Create a line segment with a y-intercept of (0,8) and a slope of \(-\frac{8}{3}\).
   What is the x-intercept? ___________
   Don’t extend the line segment beyond either intercept.

4. Create a line segment with a y-intercept of (0,7) and a slope of \(-\frac{7}{4}\).
   What is the x-intercept? ___________
   Don’t extend the line segment beyond either intercept.

5. Describe the line segments you just drew. Your description must include the following terms:
   parallel, perpendicular, slope, x-intercept, y-intercept, and reciprocal.
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

6. Use the line segments you created in 1-4 to make the Astrid.

![The Astrid](image)

7. Add color to enhance your drawing.
1. Create a line segment with a y-intercept of (0,5) and a slope of 1. What is the x-intercept? __________ Don’t extend the line segment beyond either intercept.

2. Create a line segment with a y-intercept of (0,5) and a slope of -1. What is the x-intercept? __________ Don’t extend the line segment beyond either intercept.

3. Describe the line segments you just drew. Your description must include the following terms: parallel, perpendicular, slope, x-intercept, y-intercept, and reciprocal.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

4. Use the line segments you created in 1 and 2 to make the 8-pointed star.

5. Add color to enhance your drawing.
The elements of art include: shape, form, **line**, point, color, value, **texture**, and space. Artists use **lines** to create many types of designs including optical illusions.

Slope of a line – describes the steepness of line

\[
\frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}
\]

- **y-intercept** - the point where the line crosses the vertical axis
- **x-intercept** – the point where the line crosses the horizontal axis

- **parallel lines** – lines that will never intersect (cross) – their slopes are the same
- **perpendicular lines** – lines that intersect at a right angle (90°) – their slopes are negative **reciprocals** (opposite sign, flipped fraction)

**Talking Points:**
The elements of *art* include: shape, form, *line*, point, color, value, *texture*, and space. Artists use straight *lines* to create many types of designs including optical illusions.

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