



project.org

STUDENT HANDOUT

GREEN LEVEL
MORE SUPPORT

Math vs. Your Eyes

Grades 5–8 • Math

ADMIT ONE

NAME _____

DATE _____

CLASS _____

Can math prove your eyes wrong? Your eyes can be tricked by optical illusions—but a ruler never lies! Today you'll use math to prove that what you SEE isn't always what's REAL.

PART 1

01

The Müller-Lyer illusion

Look at these two lines. Which one looks LONGER?



My prediction: (circle one) Top line is longer | Bottom line is longer | Same length

Now measure with your ruler! Top line: _____ cm Bottom line: _____ cm

Was your prediction correct? Yes / No

Why does this illusion work? The arrows create *angles* that trick your brain into thinking one line is farther away — so it looks longer than the other!

PART 2

02

Simple perspective drawing

Follow these steps to draw a 3D box using math:

1. Put a dot in the center of the box below (this is your **vanishing point**)
2. Draw a square in the bottom-left corner
3. Draw lines from each corner of the square to the vanishing point
4. Draw a smaller square where those lines would end

You just created the illusion of depth using geometry!

DRAW YOUR PERSPECTIVE BOX HERE

PART 3

03

What did you learn?

Fill in the blanks:

The two lines in the Müller-Lyer illusion are actually _____ (the same / different).

The arrows create _____ that trick your brain.

When I used a ruler, I found out that math is more _____ than my eyes.

PART 4

04

Why does math matter?

Think of times when measuring is more reliable than just looking:

MINI MUSEUM CONNECTION

The stereoscope in the Mini Museum uses math too! Your eyes are about 6 cm apart, so each eye sees a slightly different angle. The stereoscope shows each eye a different picture, and your brain calculates depth from the difference!

Visit: minimuseumproject.org/exhibitions/seeing-is-deceiving/illusions

PART 5

05

Try this math problem!

The stereoscope cards were photographed with cameras 6.5 cm apart (the average distance between human eyes).

If YOUR eyes are 6 cm apart, what is the difference? _____ cm

What percentage is that? (Hint: divide the difference by 6.5, then multiply by 100) Answer: _____ %

SHARE WITH YOUR FAMILY

Show your family the Müller-Lyer illusion. Ask them which line is longer, then measure to prove the truth! See whose eyes are tricked the most.