

Count groups of wiggles

Why Electronics Use Sine Waves

Name _____

Date _____

Show your thinking with numbers, marks, or words.

1. Little draws 2 groups of swing marks, with 3 marks in each group. How many marks are there?

$$3 + 3 = \underline{\hspace{2cm}}$$

Show your thinking.

2. Big draws spring bounces in 4 rows, with 2 bounces in each row. How many bounces are drawn?

$$2 + 2 + 2 + 2 = \underline{\hspace{2cm}}$$

Show your thinking.

3. Little counts 3 sets of rope wiggles, with 3 wiggles in each set. How many wiggles is that?

$$3 + 3 + 3 = \underline{\hspace{2cm}}$$

Show your thinking.

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4. A page has 3 rows of wave drawings, with 4 drawings in each row. How many drawings are on the page?

$$4 + 4 + 4 = \underline{\hspace{2cm}}$$

Show your thinking.

5. Big counts 5 groups of crank turns, with 3 turns in each group. How many turns does Big count?

$$3 + 3 + 3 + 3 + 3 = \underline{\hspace{2cm}}$$

Show your thinking.

6. Little draws speaker wiggles in 4 rows, with 5 wiggles in each row. How many wiggles are drawn?

$$5 + 5 + 5 + 5 = \underline{\hspace{2cm}}$$

Show your thinking.



A smooth wiggle

Little drew a smooth line

that rose and fell again. Big

called it a sine wave. Could

this shape help explain a

speaker?



Slow at the turn

The swing slowed at each end and sped through the middle. A sine-like line could record its back-and-forth motion as time passed.



A bouncing spring

Big held a spring above a tray. Its end bounced up and down. Each bounce grew smaller until the spring settled.



Along the rope

Little moved a rope from side to side. A wiggle traveled toward Big, while each bit of rope moved back and forth.

Make a little book



1 Fold it into 8 boxes. Open it flat.



2 Fold short end to short end. Cut the thick line. Open it.



3 Fold the long way, pictures out. Push the ends in.



4 Fold into a book. Page 1 goes on the front!



Turning into power

A generator turns motion into electrical energy. As a magnet spins beside wire, the electric push grows, fades, and changes direction smoothly.



A speaker's rhythm

The speaker's cone moved in and out to make a steady tone. Little drew its smooth rhythm. Where else might a wiggle appear?

WONDER DAILY
Why
Electronics
Use Sine
Waves



Give a wiggle its words

Why Electronics Use Sine Waves • Curiosity day

Name _____

Date _____

Say one clear command, then draw or write it.



Slow at the turn



A bounce comes back



A wiggle travels

Draw a swing, a spring, or a rope. Show which way it moves.

sine wave • wiggle • swing • spring • smooth • gently • back • forth

Swing ... tell how to move gently

Watch ... tell what to notice about a bounce

Draw ... describe the smooth wiggle

Does your command tell what to do, using a word such as Swing, Watch, or Draw?