Unit 2 Lesson 1: Let's Make a Box

1 Which One Doesn't Belong: Boxes (Warm up)

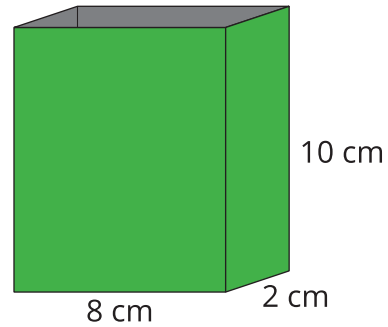**Student Task Statement**

Which one doesn't belong?
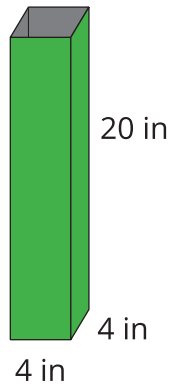
A.

length: 4 cm
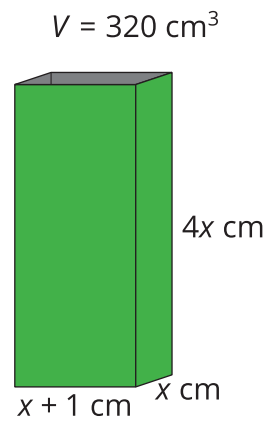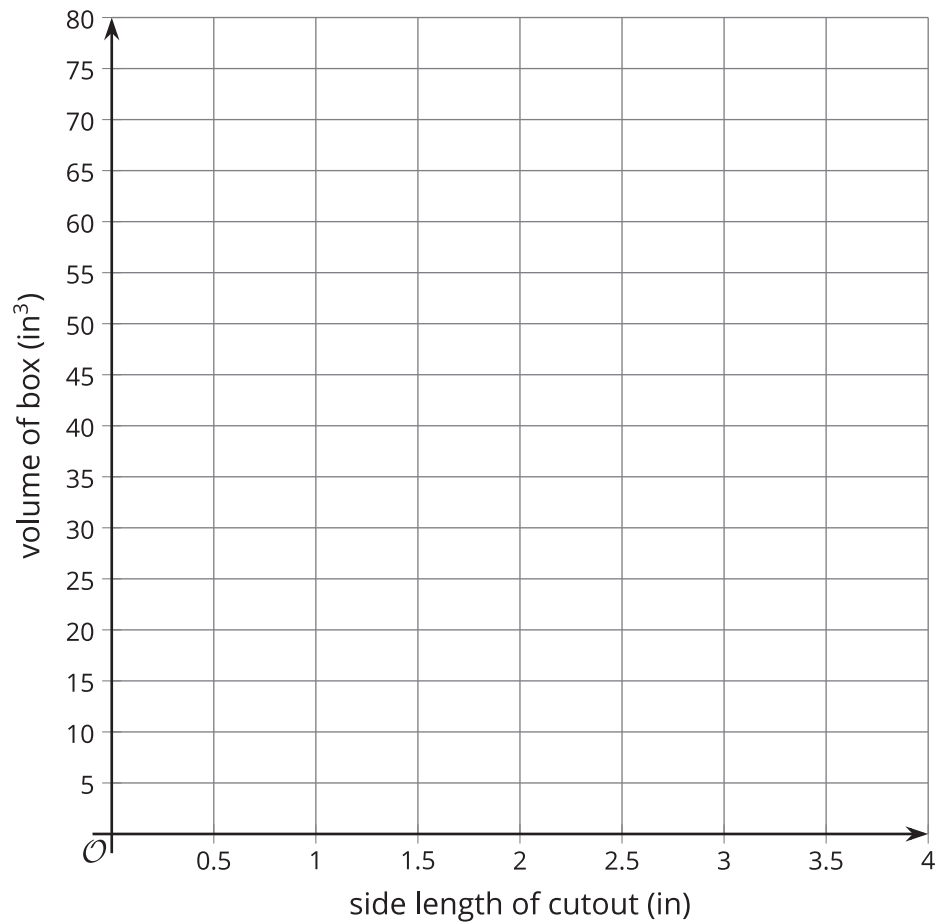
width: 8 cm

height: 10 cm

B.

10 cm

8 cm

2 cm

C.

20 in

4 in

4 in

D.

$V = 320$ cm^3

$4x$ cm

$x + 1$ cm

x cm

2 Building Boxes

Images for Launch

Student Task Statement

Your teacher will give you some supplies.

1. Construct an open-top box from a sheet of paper by cutting out a square from each corner and then folding up the sides.

2. Calculate the volume of your box, and complete the table with your information.

side length of square cutout (in)	length (in)	width (in)	height (in)	volume of box (in^3)
1				

3 Building the Biggest Box

Student Task Statement

1. The volume $V(x)$ in cubic inches of the open-top box is a function of the side length x in inches of the square cutouts. Make a plan to figure out how to construct the box with the largest volume.

   Pause here so your teacher can review your plan.

2. Write an expression for $V(x)$.

3. Use graphing technology to create a graph representing $V(x)$. Approximate the value of x that would allow you to construct an open-top box with the largest volume possible from one piece of paper.