Halving

Summary

Students create pictorial representations of multiplication using *TouchTimes* to investigate the mathematical strategy of halving. In this task students explore the idea of multi-plying, simultaneously creating half of an original quantity.

Video Link

Task

1. Challenge students to start by making a product of twenty and then figure out how to halve the product so that it is ten. Once done that, halve the product again to make five. Write the 20, 10, 5 sequence on the board for students to refer to while working.

What to Watch For

- Students will have to shift from adding more fingers to removing half of their horizontal fingers each time.

- Some students might lift their fingers one by one. If that happens, prompt them to lift their fingers all at once. Encourage them to decide how many fingers they will lift before lifting any fingers. For example, if the student creates twenty, as in the photo above, you can point to the horizontal lines and ask, *How many fingers do you need to lift to halve this factor? Let's see how this changes the product.*

Questions to Ask

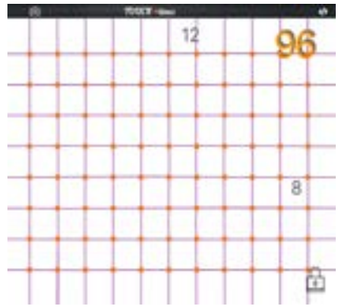
- *How is doubling different from halving?*
- If a student creates 20 on Zaplify by making 4 horizontal lightning bolts, ask them, *What do you have to do next in order to halve the product so that it becomes ten? Which side do you lift your fingers from? How do you know that?*
- If a student creates 20 on Zaplify by making 5 horizontal lightning bolts, ask them, *Why can't I halve twenty by changing the number of horizontal lines? Is there another way to halve twenty?*

Extending Student Learning

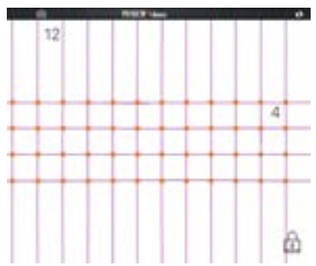
- As pairs successfully complete the given task, challenge them to find other ways to halve the product. This will result in the impossible task of halving the product of 20 by halving the factor of five.
- Early finishers can be challenged to try halving the product of 40 in two different ways.
- Students can also be asked to repeatedly halve the product starting from 50, which would quickly produce a challenge (halving 25).
- Be sure to try a challenging question like 3 × 7 and ask about halving.

Assessment

1. If you know that 48 x 12 = 576, how would you use that information to find the answer to:
   - 48 x 6
   - 24 x 12



2. How would you find the product in the pictures below by using picture above?



TEACHER TIP

Challenging questions direct student attention to reunitising (for 21 we would need 10.5 units of 2).