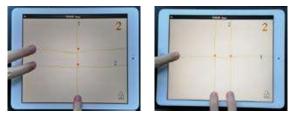# Unitising

Summary

An important part of Zaplify involves seeing how the intersecting bolts of lightning work. For example, in the pictures below, two horizontal lines are established, and with the addition of one vertical line, a two-ple (two points on each vertical line) is created at the intersection points. Making two points at once highlights the process of *unitising* (two becoming one), which doesn't typically come out in traditional ways of talking about multiplication.

Task

1. Project Zaplify onto a screen for the class to view. Make one point and explain that 1 point on a single line is called a one-ple. Then make two points as in the left photo above and state that if we call a line with one point a one-ple, then a line with two points would be called a two-ple. Demonstrate making two points in a different way, as shown in the photo above on the right. Challenge students to figure out different ways to make three points on a single line.

What to Watch For

*   It is common for students to initially place only three fingers down on either the side, or on the bottom.

*   Students may initially make one point and then press two more fingers. If this strategy persists, tell students, *You should make three points. Three points should appear at the same time*.

*   The goal of this task is for students to develop fluency in performing the *unitising* action with different numbers, using only one multi-ple making finger.

Questions to Ask

*   *Did you get this right away? If not, what did you do first? Can you explain how you knew that was incorrect?*

*   *How did you figure out how to create a three-ple instead of three one-ples?*

*   *Did you find a different way of doing this?* This provides an opportunity to discuss and demonstrate how 3 x 1 = 3 and 3 = 1 x 3 are both ways of creating a three-ple.

*   *Does the order of the lines in this case matter? Why or why not?* Make explicit that the black numerals represent the factors and the orange numeral(s)represents the product.

*   *What will happen if we add another vertical line? What happened to the horizontal line? What do you notice about the number of points?*

*   While the pair holds their fingers on the screen, ask, *What will happen if we add another horizontal line?*

*   *What happened to the horizontal line?*

*   *What do you notice about the number of points?*

*   *What should we call this?*

*   *What would a five-ple or a six-ple look like?*

Extending Student Learning

Ask early finishers how they can make four points on one line. Seven points? I wonder how many points can you create on a single line?

Assessment

1. Draw how the screen would change if you:

    *   place one finger along the bottom

    *   place two fingers along the bottom

    *   place one finger along the bottom and one finger on the left side.

2. Show how to make 6 intersections in Zaplify in two different ways.