



[Video Link](#)

Pips versus Pods

Summary

This task invites students to attend more closely to the different roles that the pips and the pods play in multiplication.

Tasks

1. Students make $3 \times 5 = 15$ on their iPads. If your partner can only put one more finger on the screen where should it go to make the product the largest possible?



Begin with $3 \times 5 = 15$



Add a pip-finger or



Add a pod-finger

2. Challenge students to make $6 \times 4 = 24$. Where should the extra finger go to make the largest product?



Begin with $6 \times 4 = 24$



Add a pip-finger or



Add a pod-finger

3. Predict how to make the largest product for 5×5 , 2×6 , 6×2 . Would we add another pip or another pod? After making their predictions, have students check to see if their predictions were correct.
4. Have students draw what $3 \times 4 = 12$ would look like in Graspify using pencil crayons to show what the colours would look like in the pips and the pods. Then draw a second picture that shows what Graspify would look like if another pip-finger was added. Finally, draw a third picture that shows what Graspify would look like if you had $3 \times 4 = 12$ and created another pod.

What to Watch For

- We want students to notice the relationship between the pips and the pods and be able to explain how the product is influenced by the addition of a pip or a pod. By adding a pip to $3 \times 5 = 15$, it increases the product by 5 because an additional pip appears in each of the existing 5 pods. Alternately, by adding a pod, it increases the product only by 3 because an additional pod includes 3 pips.

Questions to Ask

- What happens to the product when we add a pip-finger?
- What happens to the product when we add a pod-finger?
- Which creates the largest product? Why?
- Do you know if your prediction will be correct for sure, without trying it out on Graspify? How do you know?
- What do you do when both numbers are the same? How do you know which will create the larger product?

Extending Student Learning

- Early finishers can be challenged with a more open task, *Place as many pip-fingers as you want on the screen. Your partner will place as many pod-fingers as they want on the screen. Which side would you increase by one to get the largest product?* Students can continue to play this game by taking turns.

Assessment

Alternatively, invite students to come up with a context that models the pips versus pods situation they have explored. For example, if there are 4 motorcycles, each of which has 3 wheels, would you have more wheels in total by having an extra motorcycle or by having an extra wheel on each motorcycle? This might initiate a discussion about different circumstances in which it would be better to have more wheels or less wheels. A picture of a 3-wheeled motorcycle may help some students.



TEACHER TIP

Try to generate a more general statement, such as, "You can make a bigger product by putting the extra finger on the side with the smaller number."