

algebraforall

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Sample Activity Yellow

Frogs in a Pond

Making ordered lists

AIM

Students will make an ordered list and record the list in a table format. They will then rewrite the table in a systematic way.

MATERIALS

- 1 copy of the blackline master (opposite) for each student
- 5 identical magnetic counters (or standard counters and Blu-Tack)
- 5 identical counters for each pair of students
- Numeral cards for 0 to 7
- Blu-Tack

REFLECTION

On the board, draw 2 ponds and a table with 8 blank rows and the headings "Frogs in Pond 1" and "Frogs in Pond 2". Show the numeral cards for 0 to 7. Challenge the students to systematically find all the ways to put 7 frogs in the 2 ponds. Demonstrate the 1st step by placing the "zero" card in one pond. Ask, *How many frogs are in the other pond?* (7) Then place the "1" card in the 1st pond and ask, *How many frogs are in the other pond?* (6) Continue until there are 7 frogs in the 1st pond and zero frogs in the 2nd pond. Record the data in the table.

1 Give each student a copy of the blackline master. Draw a pond and the table from Question 1a on the board. Use counters to model the story. Say, *Imagine we have 3 frogs in the pond. How many frogs are out of the pond?* (2) Record the answer in the table. Repeat for 2 frogs in the pond. Ask the students to work in pairs with 5 counters to complete Question 1a.

2 Ask, *How many different ways can 5 frogs be in and out of the pond?* (6) *How can we check that we have all the different ways?* Allow time for the students to share their thinking. Explain that the table could be rewritten systematically to check. Have the students complete Question 1b with their partners, then call on volunteers to share their answers. If the students have not completed the table systematically, draw examples on the board as shown below. Say, *Here are 2 ways that you can write the answers systematically.*

In the pond	Out of the pond
0	5
1	4
2	3
3	2
4	1
5	0

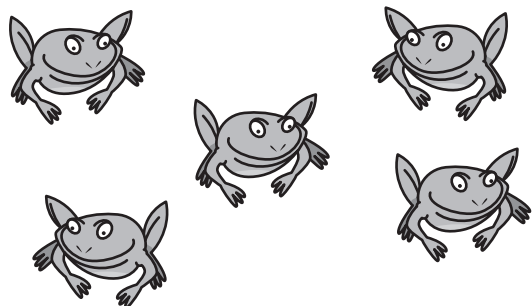
In the pond	Out of the pond
0	5
5	0
1	4
4	1
2	3
3	2

Use counters to demonstrate the 2 ways shown in the tables.

3 Ask the students to complete Question 2. Call on volunteers to share their findings.

Frogs in a Pond

Name _____



1. a. Write the different ways 5 frogs can be in and out of the pond.

In the pond	Out of the pond

b. Write the different ways in order.

In the pond	Out of the pond

2. Chi and Sam wrote all the ways they could place 6 frogs on or off the river bank.

ON	OFF
6	0
2	4
3	3
1	5
0	6
4	2

ON	OFF

a. Write the different ways in order.

b. What did you find? _____
