

Species Interactions Lab

mrsajdak.com/interactions · Low-write

Name _____

Date _____

Period _____

Code:

+ more with the other one

– fewer with the other one

0 the same

Part 1. Take one away (Tab 1)

SEP 3 Investigating · CCC Cause and Effect

Pick a pair. **Skip to the end** with both checked. Then uncheck one and run. Then swap. **Your runs** keeps the numbers.

CLUE: With the other is bigger: +. Smaller: –. The same: 0. Example: 10 alone, 30 with the other, so +.

1. Write the numbers. Circle one sign. Write the name from the word bank.

WORD BANK mutualism (+ +) · commensalism (+ 0) · predation (+ –) · parasitism (+ –) · competition (– –) · succession · coevolution

Pair	Species	Alone	With the other	Circle a sign	Name (word bank)
Lady beetles + aphids	Lady beetles			+ – 0	
	Aphids			+ – 0	
Bumblebees + coneflowers	Bumblebees			+ – 0	
	Coneflowers			+ – 0	
Sea lampreys + lake trout	Sea lampreys			+ – 0	
	Lake trout			+ – 0	
Robins + street maples	Robins			+ – 0	
	Street maples			+ – 0	
Purple loosestrife + cattails	Loosestrife			+ – 0	
	Cattails			+ – 0	

2. The maples got a 0. The robins: ☐ help them ☐ harm them ☐ do not help or harm them

3. Watch the habitat. Tick one box on each line.

A lady beetle ☐ eats the whole aphid ☐ feeds on a living aphid for weeks

A sea lamprey ☐ eats the whole trout ☐ feeds on a living trout for weeks

So lady beetles and aphids are _____, and sea lampreys and trout are _____.

WORD BANK predation · parasitism · mutualism

4. Which was hurt more? ☐ loosestrife ☐ cattails It went from _____ alone to _____ with the other.

Part 2. Boom and crash (Tab 1)

SEP 5 Using Math · CCC Stability and Change

Check both. Press **Run** and watch the graph. Dashed lines are runs with one species gone.

5. Highest aphid count: _____ on day _____. Highest lady beetle count: _____ on day _____

6. Which one peaked first? ☐ aphids ☐ lady beetles

Why do lady beetles go up **after** the aphids? Tick one.

☐ They need lots of aphids to eat before they can make more beetles. ☐ Both eat milkweed.

☐ Beetles hatch late.

7. With no lady beetles, the aphids stop at _____. That is the **carrying capacity**, the most the habitat can hold. With lady beetles, the aphids stay ☐ above it ☐ below it ☐ at it

8. Lake trout alone: _____ With sea lampreys: _____

Example: 200 alone, 150 with. Lost $200 - 150 = 50$. Then $50 \div 200 = 0.25$, so 25% lost.

Lost: _____ – _____ = _____. Then _____ $\div$ _____ = _____, so _____% of the trout were lost.

Part 3. Mystery pairs (Tab 2)

SEP 7 Argument from Evidence · CCC Patterns

Two real species with their names hidden. Do all three runs: both together, X alone, Y alone. Make your call before you press **Reveal**. Then press **New mystery pair** for trial 2.

9. Write the numbers. Circle the signs. Write the real names after Reveal.

Trial	X alone	X with Y	Y alone	Y with X	Sign for X	Sign for Y	It was (names)
1					+ - 0	+ - 0	
2					+ - 0	+ - 0	

10. Pick trial 1 or 2. Finish each line.

Claim: The interaction was _____

WORD BANK mutualism · commensalism · predation · parasitism · competition

Evidence: X had _____ alone and _____ with Y. Y had _____ alone and _____ with X.

Reasoning: This proves it because _____

11. Predation and parasitism both have the signs + and -. Can the numbers alone tell them apart?

☐ Yes ☐ No

A scientist would also need to watch whether one species _____ the other or _____ on it while it is alive. **WORD BANK** eats · feeds · helps · ignores

Part 4. Sharing a tree (Tab 3)

SEP 6 Constructing Explanations · CCC Structure and Function

Three kinds of warbler eat insects in the same spruce trees. Keep all three checked. Press **Skip to the end** with **Anywhere in the tree**. Then do it again with **Each in its own part**.

12. Write the numbers at year 50.

How they feed	Cape May warblers	Bay-breasted warblers	Yellow-rumped warblers
Anywhere in the tree			
Each in its own part			

13. When all three feed anywhere, two kinds of warbler _____. They lose the _____ for the same food. **WORD BANK** die out · grow · competition · mutualism

14. Splitting up food or space is called **resource partitioning**. Why can all three live in the tree when they split it? Tick one.

- ☐ Each kind eats insects in a different part, so they compete less.
☐ The tree grows more insects when birds split it up.
☐ The birds help each other find food.

Wrap it up

SEP 2 Developing and Using Models · CCC Cause and Effect

15. Since 1958, crews have treated the streams where sea lampreys hatch. If all the lampreys are gone, I predict the lake trout will

☐ go up ☐ go down ☐ stay the same

Test it: uncheck sea lampreys and run. The trout end at _____. Was your prediction right? ☐ yes ☐ no

16. A classmate says, "In every interaction, one species wins and one species loses." Tick **two** pairs that prove this is wrong.

☐ bumblebees + coneflowers ☐ lady beetles + aphids ☐ robins + street maples ☐ sea lampreys + lake trout

These prove it wrong because _____