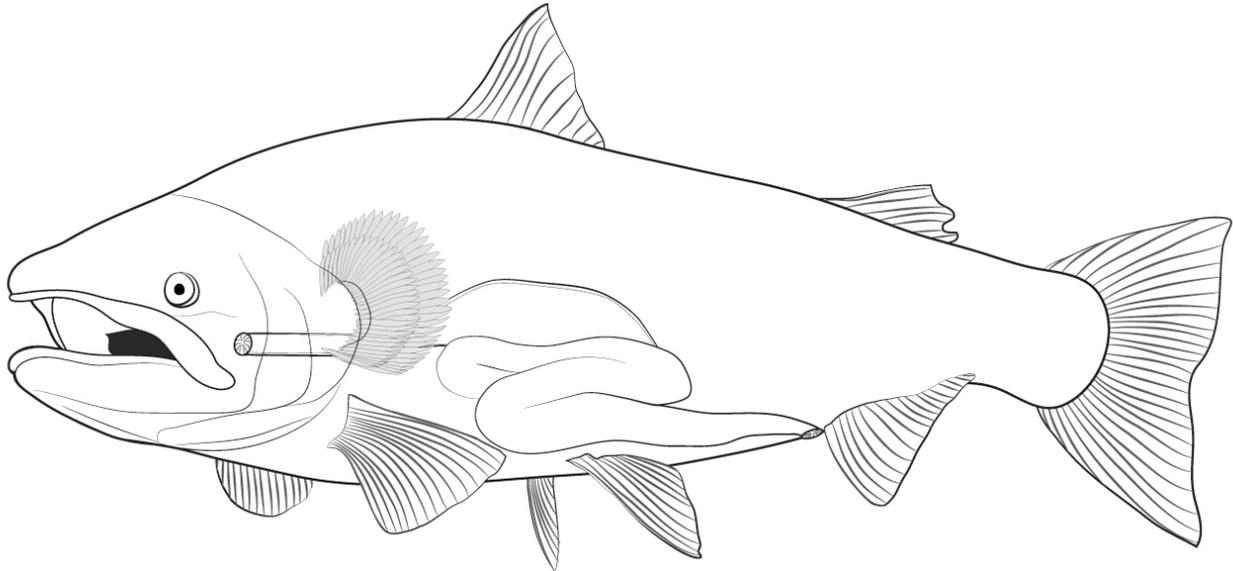


6.1: Salmon Worksheet

Draw and label arrows that represent the molecules that carbon atoms are in as they move into, through and out of the salmon as it moves and grows.

Label each arrow to show the kind of molecules that the carbon atoms are in: large organic molecules (LOM), small organic molecules (SOM), or carbon dioxide (CO₂).



What happens to the food the salmon eats as it moves and grows?

How does the salmon get oxygen and use oxygen as it moves and grows?

A. Investigating how salmon grow and function

A class was interested in how salmon grow. The teacher started the lesson by telling his students that a salmon eats a lot of food each week but only gains a little bit of weight. The teacher asked, "What happened to the mass of the rest of the food?"

a. Three students shared their ideas about what happened. Do you agree or disagree with what each student claims?

Agree	Disagree	Marshall: "The salmon's body turned most of the mass of the food into energy in order to move and grow."
Agree	Disagree	Eva: "The salmon breathed out most of the extra mass of the food as gases dissolved in water, like CO ₂ ."
Agree	Disagree	Boe: "The salmon's body got rid of most of the extra mass of the food as solid waste (feces)."

b. Provide an explanation. Why do you agree or disagree with each student's claim?

c. The class generated some data. They measured the starting mass of 5 salmon and put each salmon in its own aquarium. Then they gave each salmon 300 grams of food and made sure the salmon always had the same amount of water in their aquariums. After one week, the students measured the masses of the salmon, leftover food and salmon feces. Below are the data they generated.

Sample	Change in salmon mass (g)	Change in food mass (g)	Mass of solid waste (g)
1	+20	-200	+40
2	+20	-201	+50
3	+30	-203	+50
4	+10	-109	+4.0
5	+40	-203	+70
Average	+24	-183	+50

Which claim do you think is best supported by the data?

- Marshall's claim
- Eva's claim
- Boe's claim

Explain how the patterns in the data support the claim that you chose.

d. What additional evidence would you collect to help show that the claim you chose is the best claim?

B. A question about how salmon grow and function

When a salmon was one month old, it weighed 0.2 kg. After 1 year, the salmon has grown into an adult salmon, weighing 5 kg. Where did its increase in mass come from?

Select True or False for the following statements.

Some of the salmon's mass:

True False *is created by the salmon.*

True False *comes from the air.*

True False *comes from sunlight.*

True False *comes from water.*

True False *comes from food.*

Which ONE of the following do you think provides the MOST mass to the salmon?

- a. Mass the salmon's body created
- b. Air
- c. Sunlight
- d. Water
- e. Food

Explain your choices. Where do you think the increase in the mass of the salmon comes from?

How does the salmon's digestive system (stomach and intestines) help it gain mass as it grows?

How does the salmon's blood help it gain mass as it grows?

C. Something interesting about salmon

What is something interesting that you learned about the salmon that makes this animal different from other animals?
