Stream Food Webs

Learning Module #13

WATER DAWGS

Agenda

Time	Length	Activity
9:00	**30 min**	**Opening Activity**
9:30	**50 min**	**Stream Food Web Activity**
10:20	*10 min*	*BREAK*
10:30	**30 min**	**Stream Food Webs – Guided Notes**
11:00	**1 hour, 15 min**	**Riverwebs Documentary Viewing and Discussion**
12:15	**15 min**	**Closing Activity**

Opening Activity

- For the opening activity, there are going to be two questions. We will answer and discuss one question at a time.

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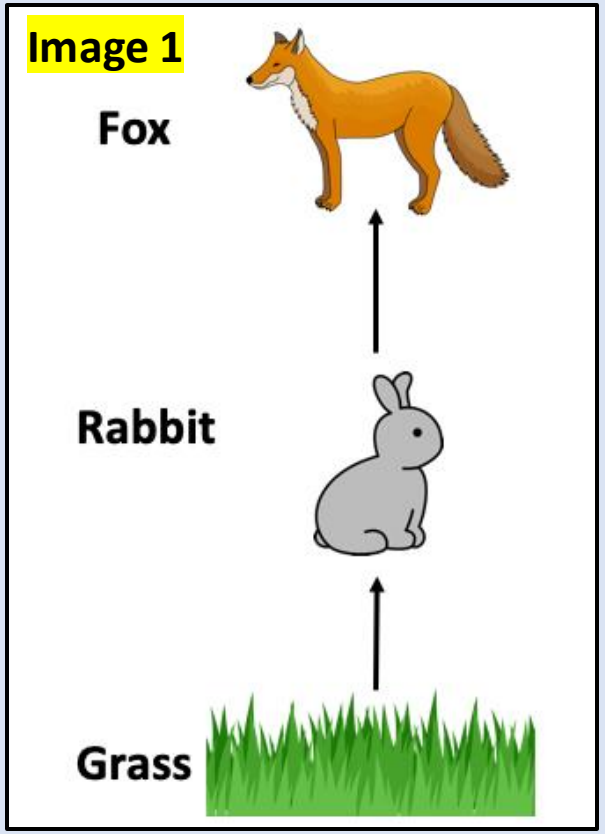
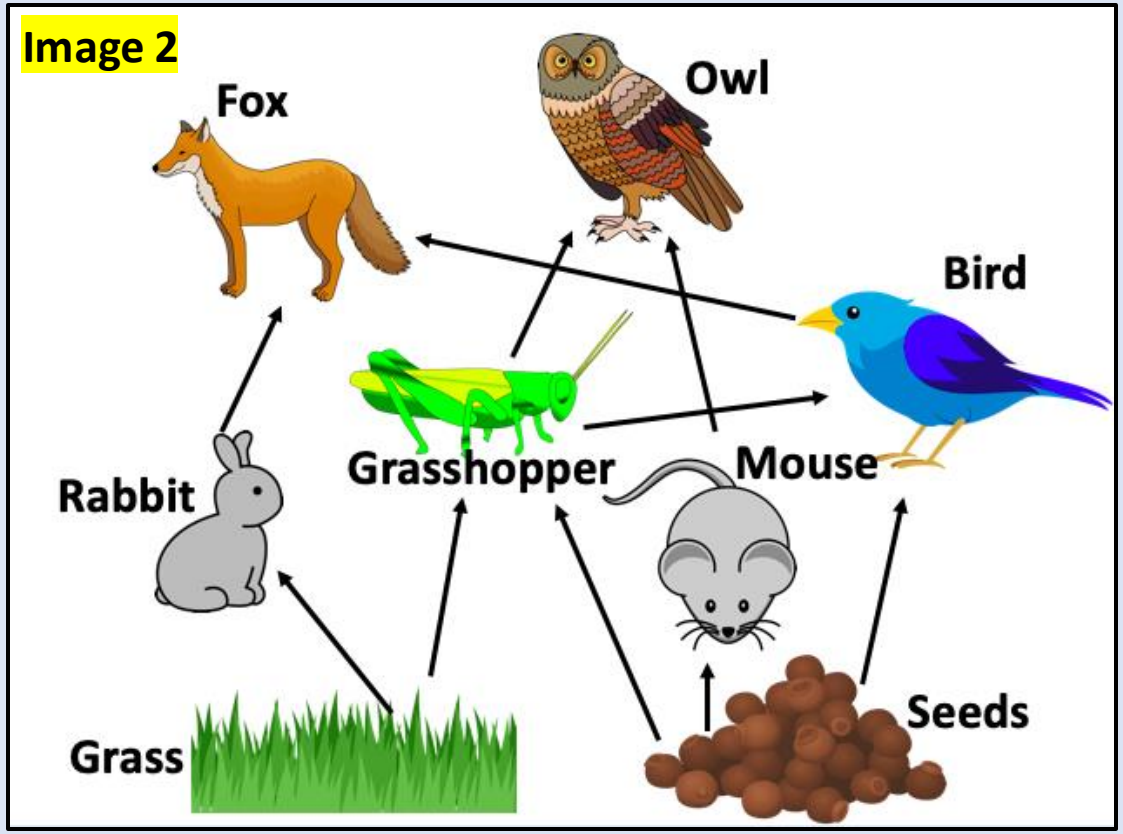
Opening Activity

- Question 1: What do you know about Image 1 and 2? What does each represent? How are they similar or different? What do the arrows represent? Explain what you know!





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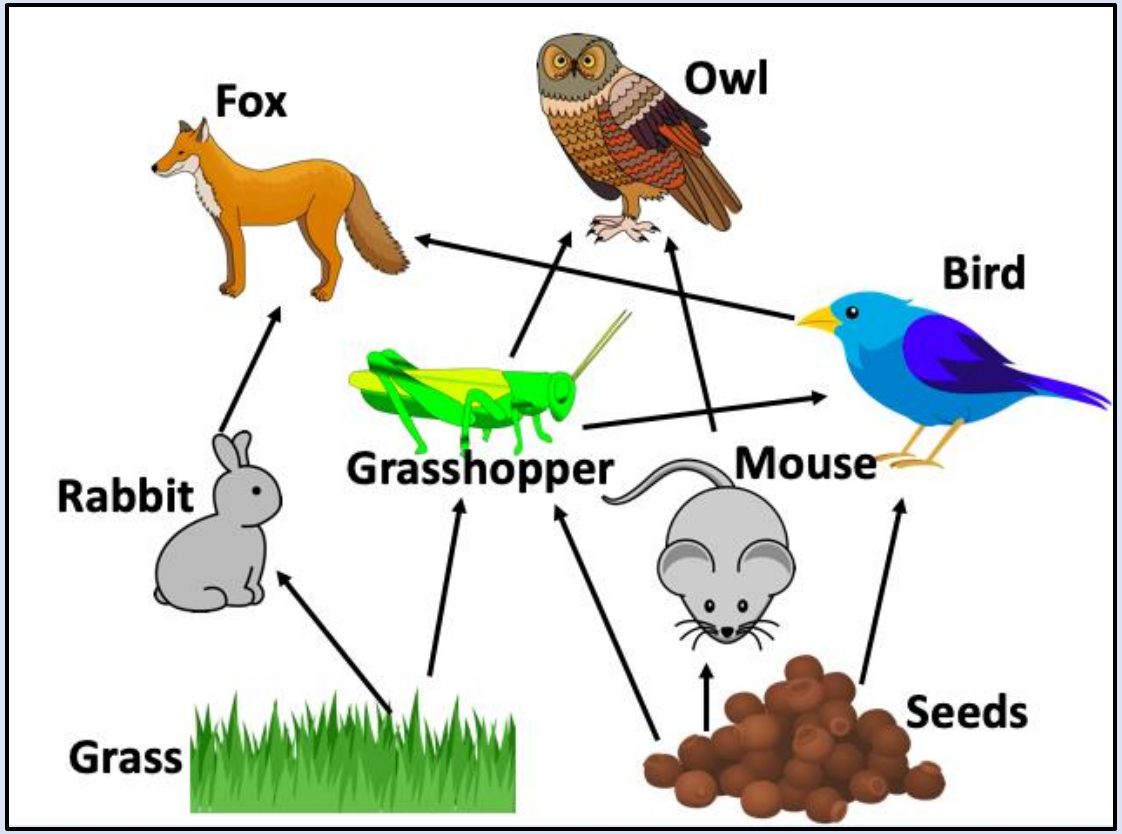
Opening Activity

- Question 2: Sort the organisms into this food web into four categories: producer, herbivore, omnivore, and carnivore.



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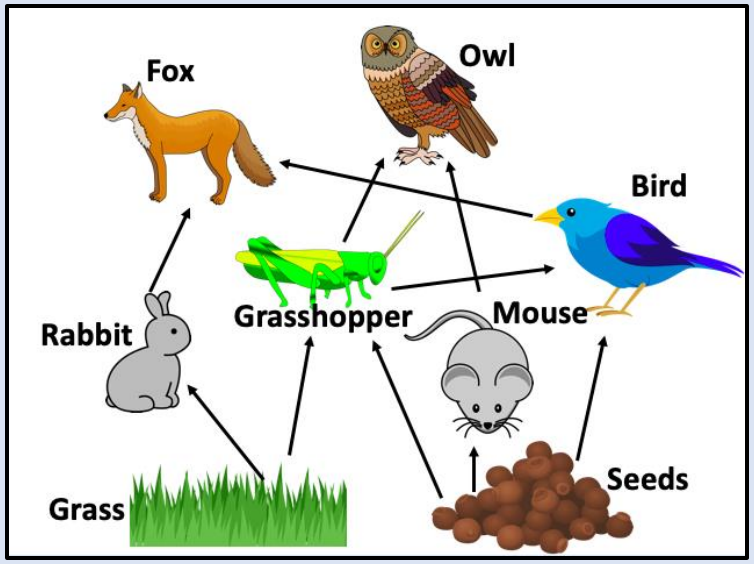
Opening Activity

Producers	Herbivores
Omnivores	Carnivores



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Stream Food Web Activity

We've talked about food chains and food webs in forest ecosystems, so now we're going to talk about stream food webs. In this activity, you'll be creating your own stream food chains and webs, and then answering some questions regarding the food web.

Materials:

- Lesson worksheets
- Colored pencils
- Scissors
- Tape
- Blank Paper

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Stream Food Web Activity

- You will work through the Stream Food Web Activity (on your lesson worksheet) independently. You can chat with a partner if you have questions!

- **Important notes:**
  - You should raise your hand and have the instructor check your activity at two points:
    - Once you've created the two food chains
    - Once you've created your food web
  - Your food web will probably look different than your neighbor's – that's OK! There is no one correct "answer" – there are many different possibilities.
  - Once you have made it through the "directions", you can start answering the associated questions.

- You will have ~40 min to work through the activity and answer the questions.

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Stream Food Web Activity

Questions

1. What are the two main types of producers in stream food webs?
2. Are there any organisms in the stream food web that you aren't familiar with/haven't' heard of before? If so, which ones?
3. Do all organisms in the stream food web actually live in the water? If not, give two examples of organisms that live outside of water.
4. What might happen to the stream food web if all of the trees were taken away from the edge of the stream? State two organisms that would be directly affected. State two organisms that might be indirectly affected.
5. What might happen to the stream food web if all of the birds (heron, kingfisher) were to die? State two organisms that would be directly affected. State two organisms that might be indirectly affected.
6. Are there any other interesting things you notice about the stream food web? Write them here.

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Example Food Web

Heron

Carnivore – eats fish

Largemouth bass
(large fish)

Carnivore – eats small fish, crayfish

Kingfisher

Carnivore – eats small fish, crayfish

Spider

Carnivore – eats insect larvae after they have grown into adults and emerged

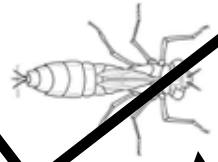
Creek chub
(small fish)

Carnivore – eats insect larvae

Spotted bass
(large fish)

Carnivore – eats small fish, insect larvae, crayfish

Dragonfly larvae
(insect larvae)

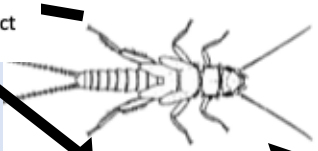


Carnivore – eats insect larvae

Crayfish

Omnivore – eats algae, insect larvae, and leaves

Stonefly larvae
(insect larvae)



Herbivore – eats leaves it shreds

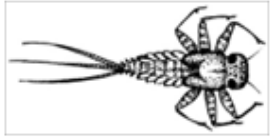
Caddisfly larvae
(insect larvae)

Herbivore – eats small bits of leaves

Snail

Herbivore – eats algae off of rocks

Mayfly larvae
(insect larvae)



Carnivore – eats algae off of rocks

Algae

Producer

Tulip poplar leaves

Producer

Red maple leaves

Producer

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Take a break!

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Stream Food Webs – Guided notes

Make sure to write down anything that is **bold, underlined, and brown**.

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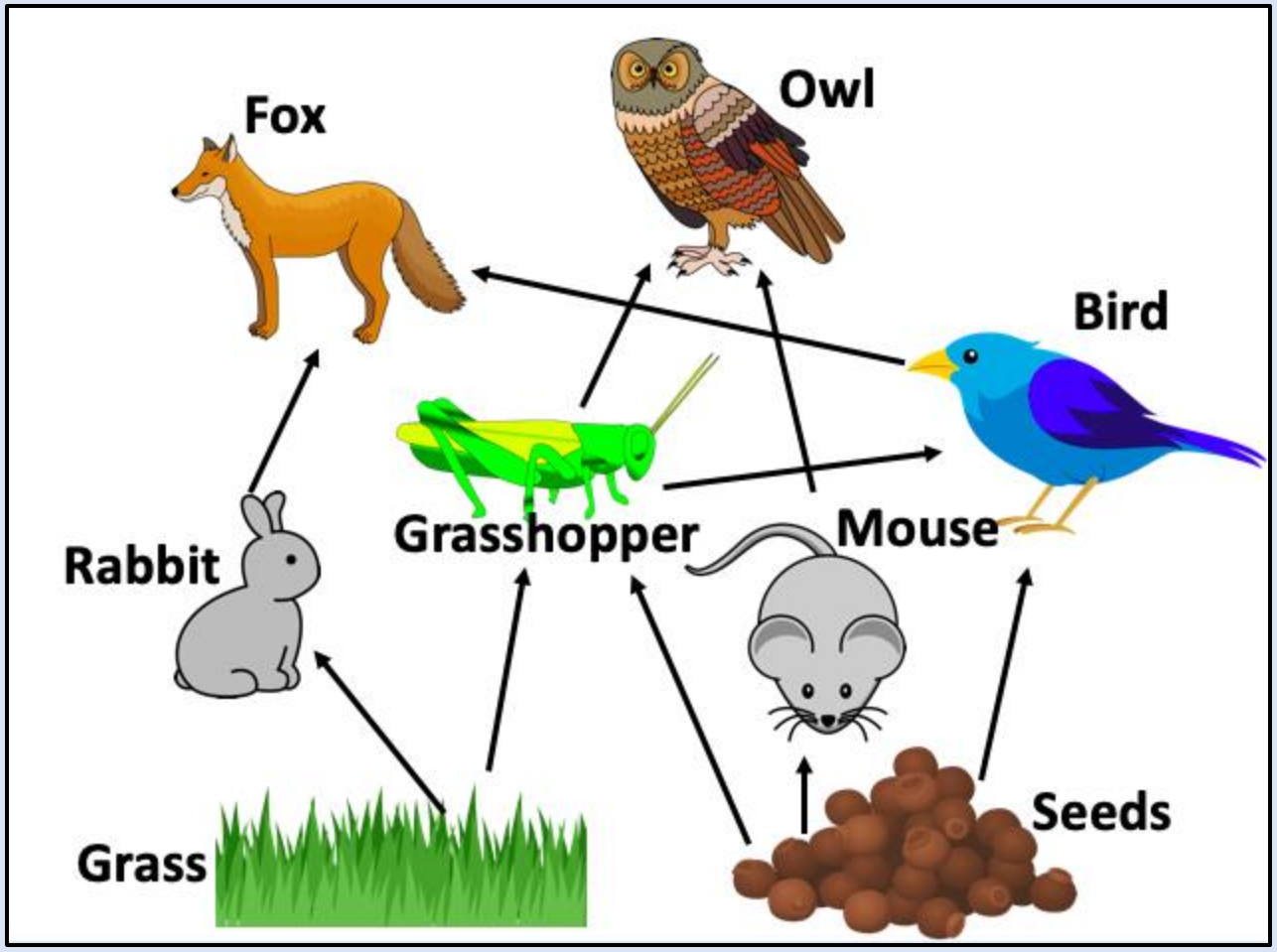
Terrestrial Food Web



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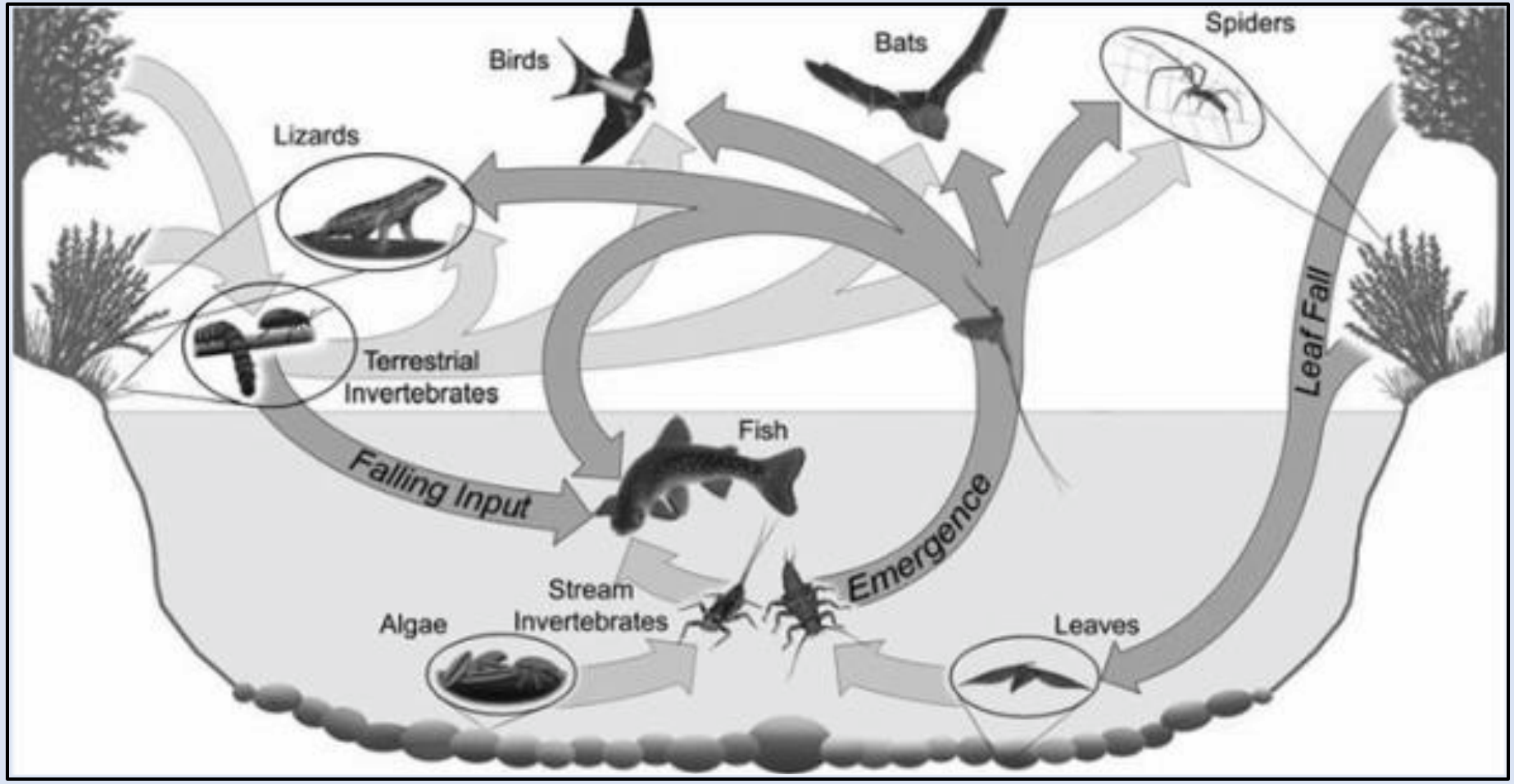
Stream Food Webs



Baxter et al. 2005

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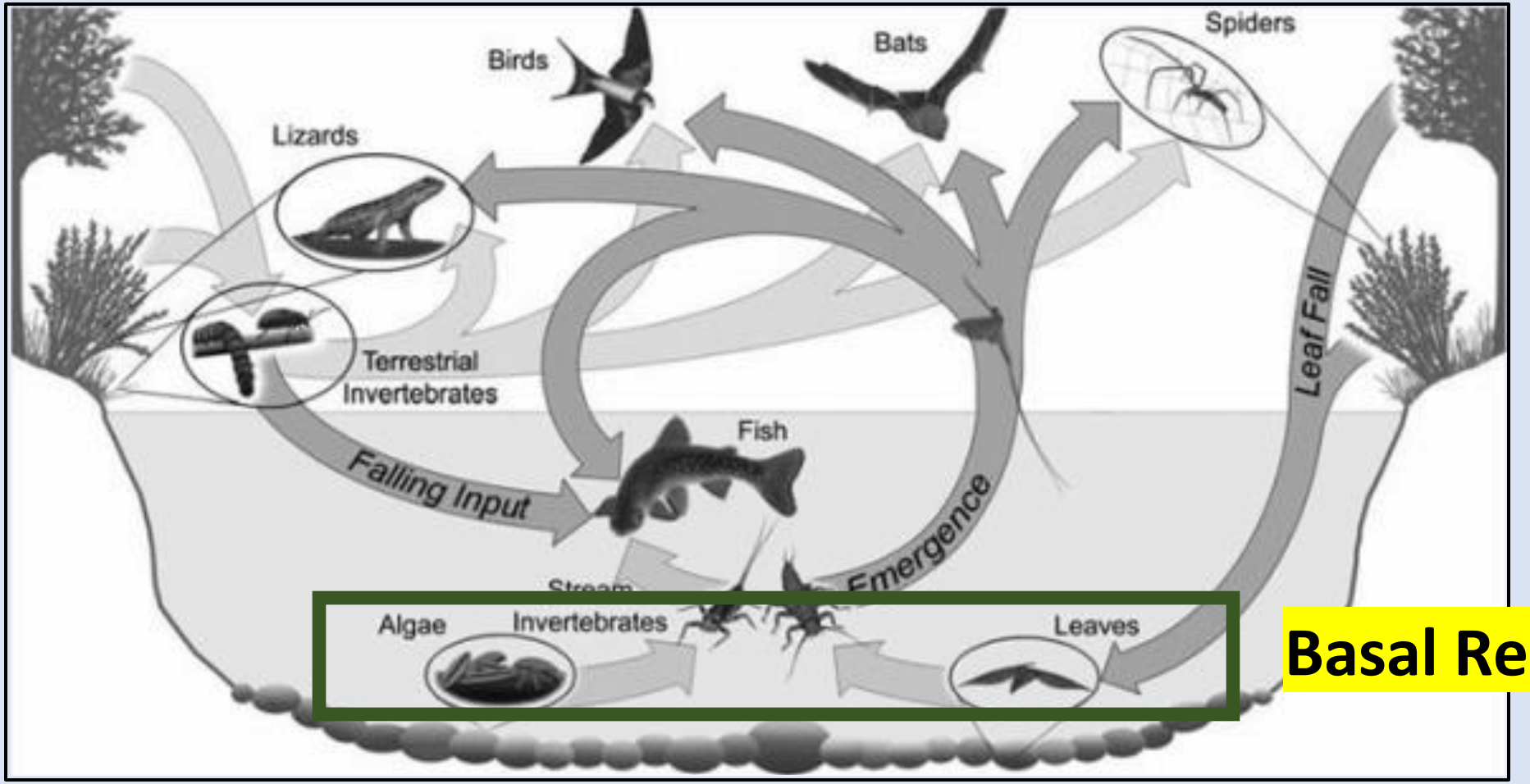

Basal Resources

Baxter et al. 2005

Stream Food Webs

Basal resources = producers/bottom of food web. Harness sunlight to synthesize foods

In streams, there are two major kinds of basal resources….

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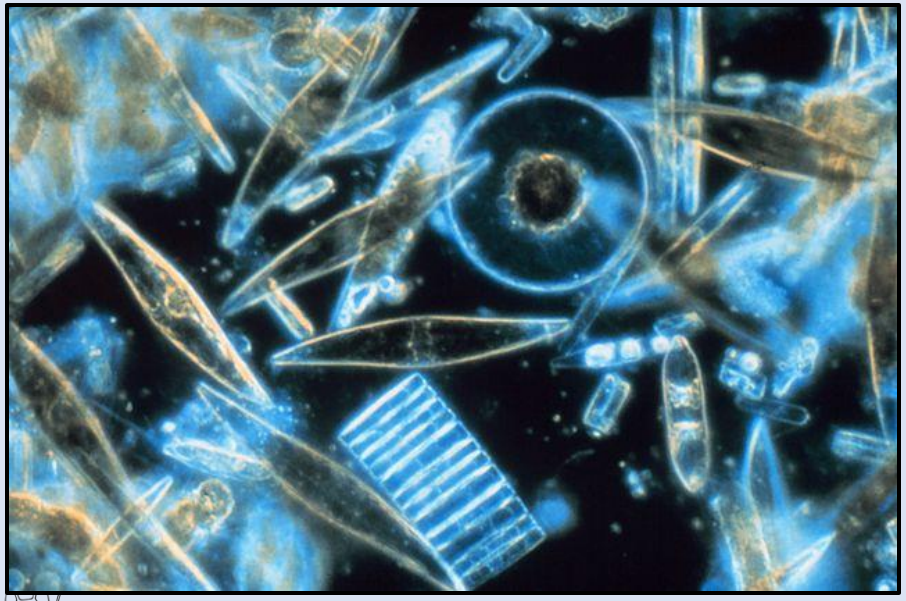
Stream Food Webs

Algae – **mostly aquatic organisms that perform photosynthesis**

- There are many type of algae.
- Some kinds of algae you can see with your eyes, while some are microscopic.



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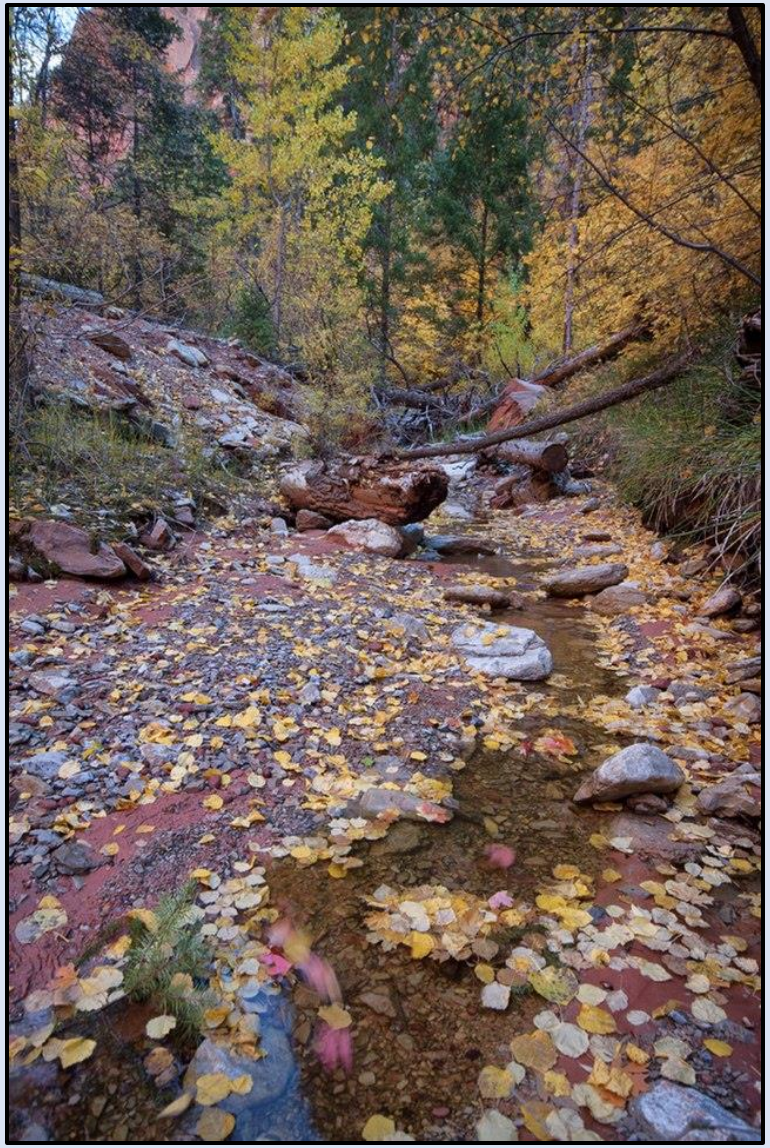
Leaves – **leaves that fall into the stream from plants in the riparian zone**

- Sometimes known as "detritus"



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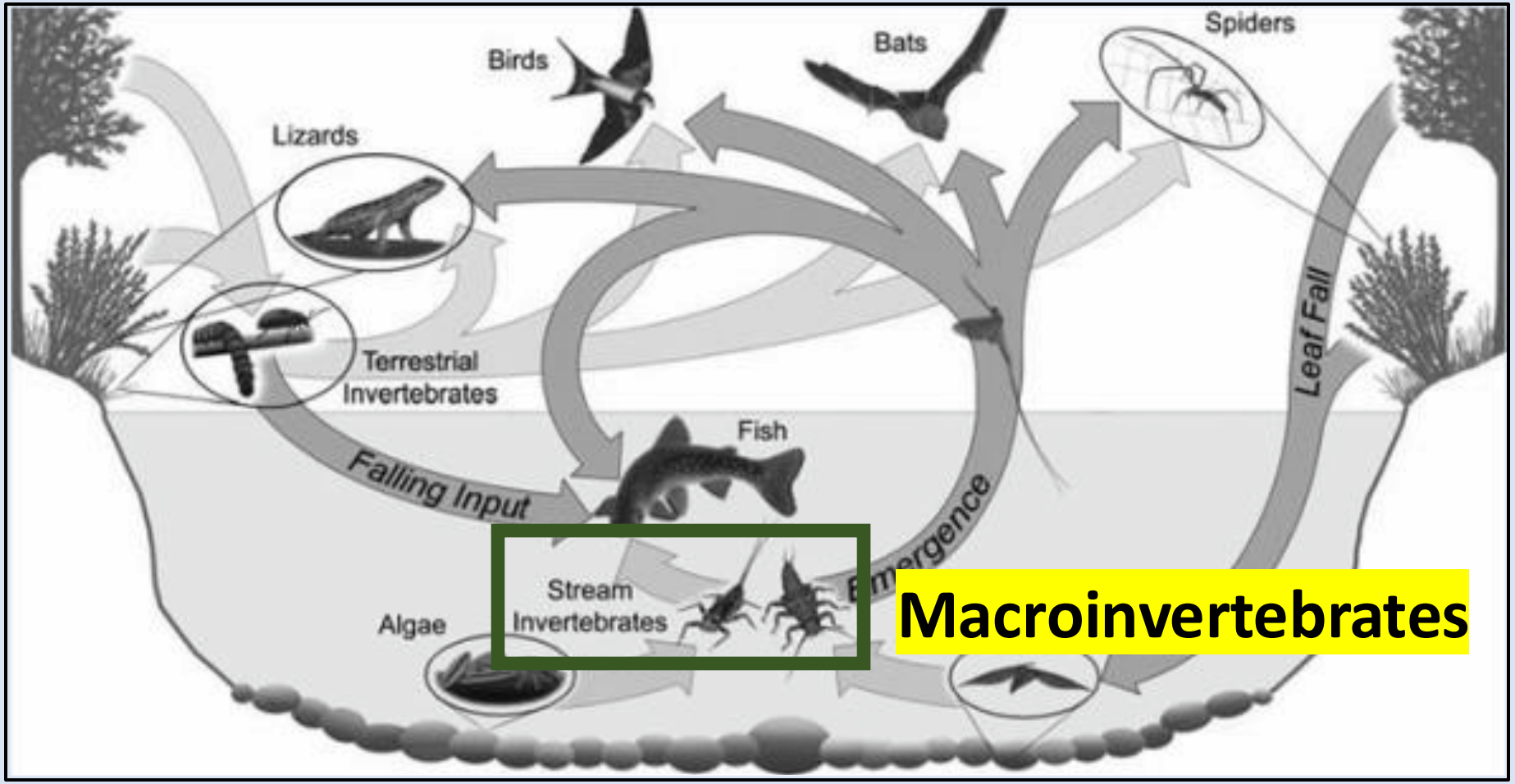
Stream Food Webs



Baxter et al. 2005

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Stream Food Webs

Macroinvertebrates – **organisms with out skeletons that we can see with our eyes**

- Have no skeleton
- Some kinds only live part of their lives in the water (e.g., dragonfly, mayfly)
- Some kinds live their whole lives in the water (e.g., snails, crayfish)
- Important part of stream food web (food for fish!)

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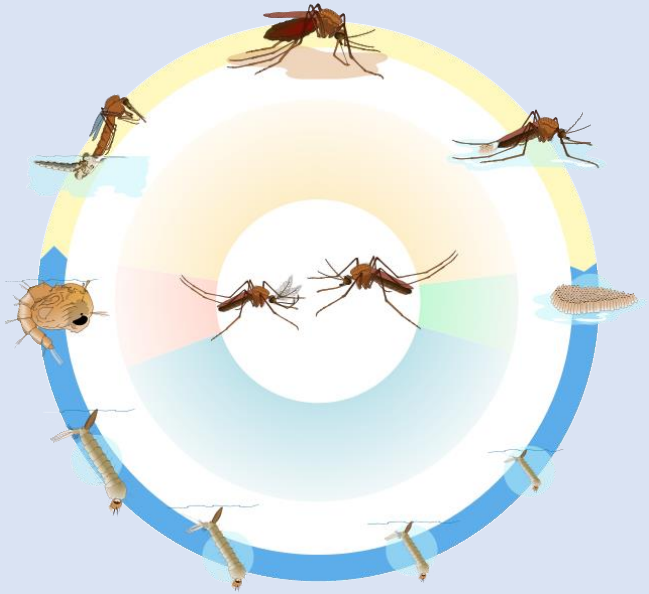

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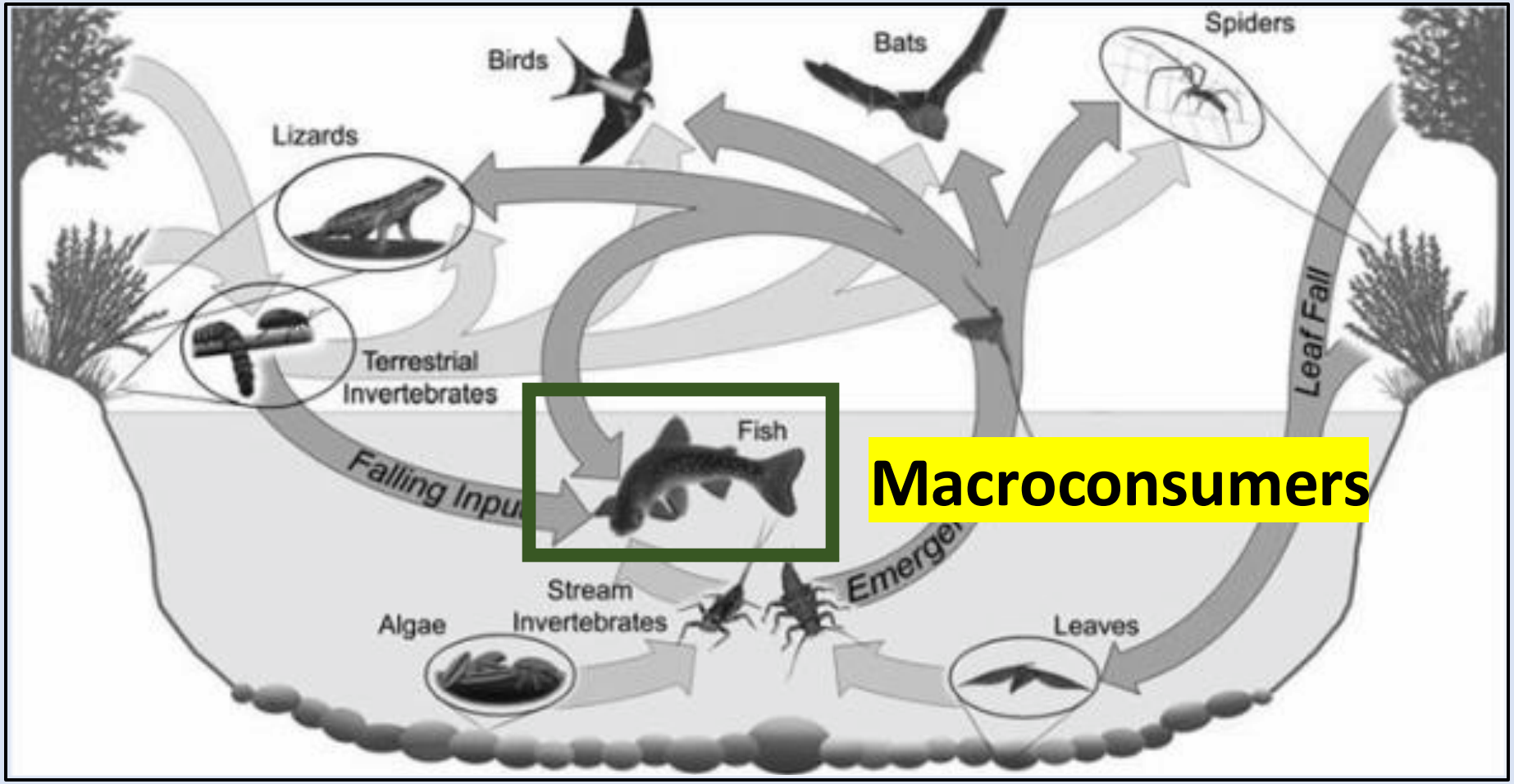

Baxter et al. 2005

Stream Food Webs

Macroconsumers – **large bodied, relatively long lived organisms that play dominant roles in stream ecosystems, like fish and crayfish**

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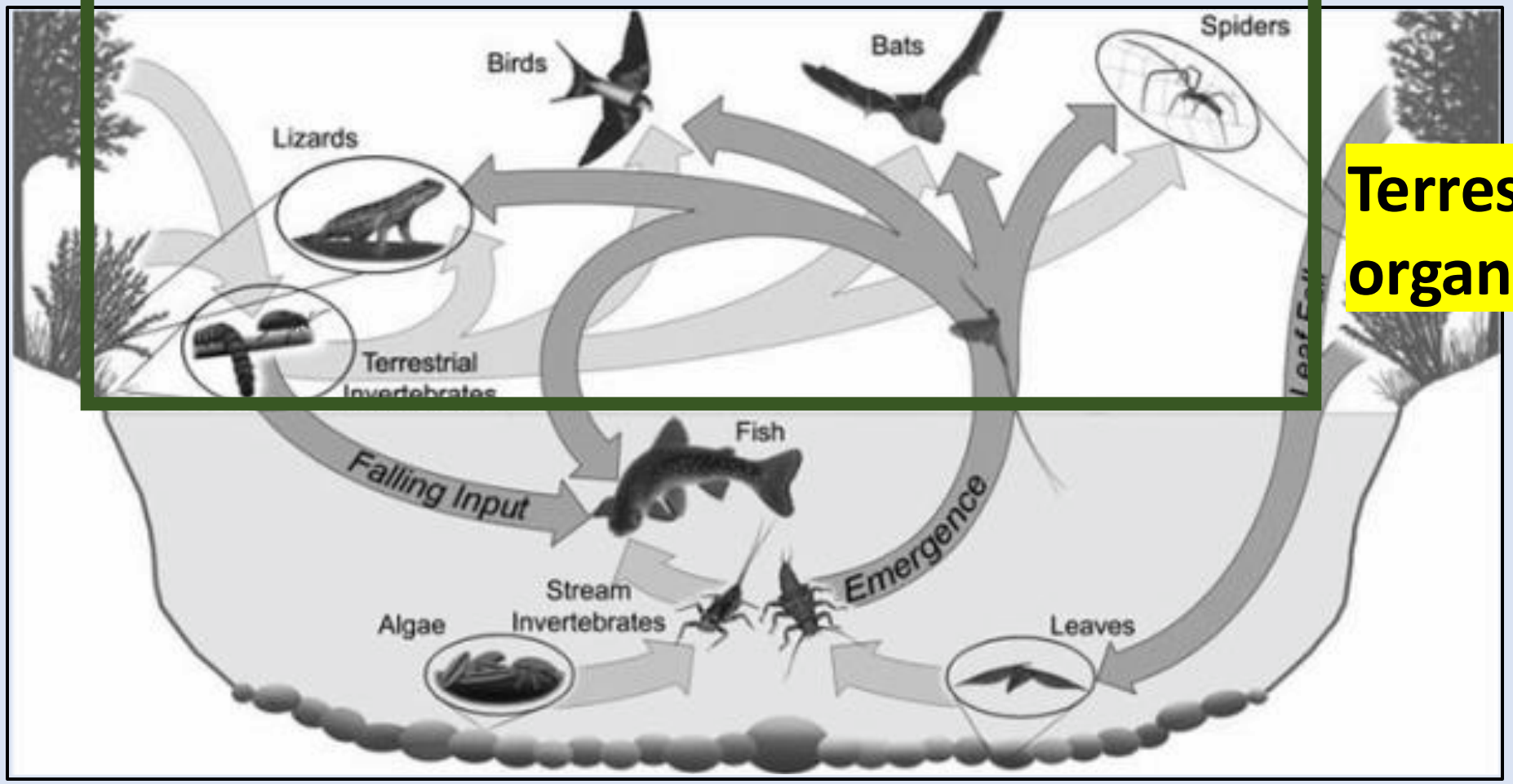
Stream Food Webs



Terrestrial organisms

Baxter et al. 2005

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Riverwebs Viewing

- As you watch the documentary write:
  - One (or more) things/topics you find cool or interesting
  - One (or more) questions you have
- Write these on your lesson worksheet

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Riverwebs Discussion

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Closing Activity

Instructions:

1. Write your response to the questions on the paper.

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Closing Activity

Scenario: Imagine someone dumped insecticide (in other words, an insect killer) into a stream. This insecticide killed off all of the macroinvertebrates in the stream, but did not directly affect other parts of the stream food web.

1. How do you think **algae** in the stream might be indirectly affected by the insecticide? Explain your reasoning.

2. How do you think **fish** in the stream might be indirectly affected by the insecticide? Explain your reasoning.

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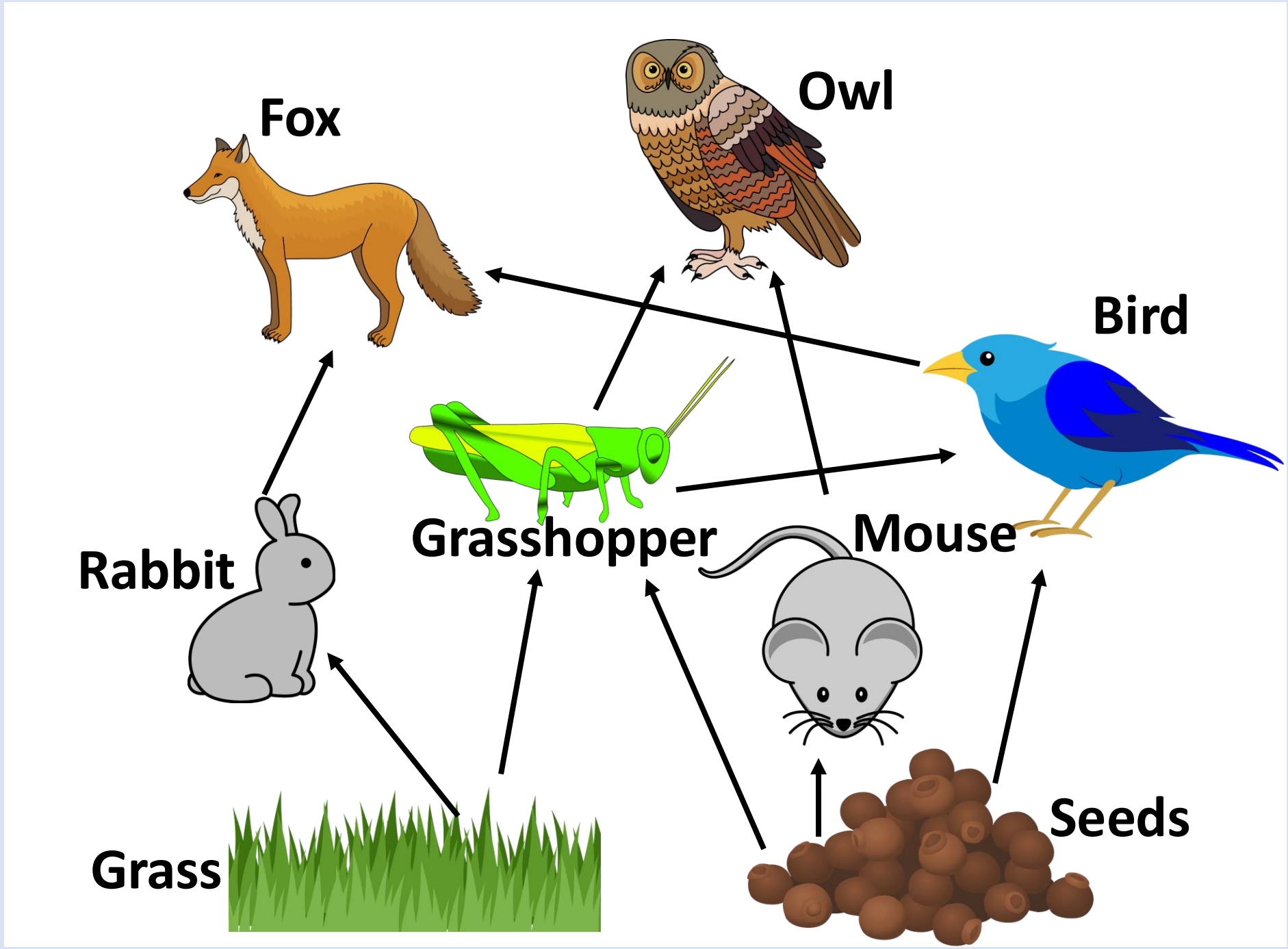

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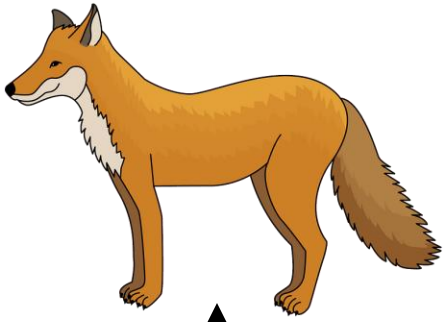
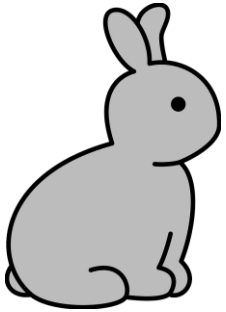
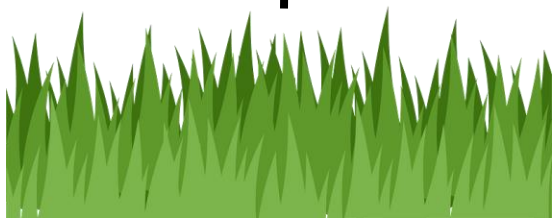
Fox



Rabbit



Grass



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