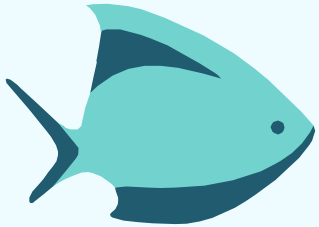
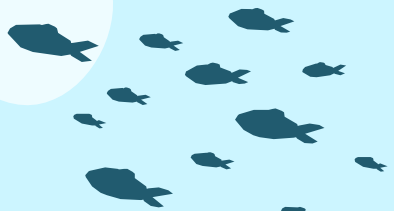
Scientific Modeling





Session 3

What did we do last week?

1. Talked about criteria for good scientific models
2. Looked at evidence in MEME
3. Updated models based on the evidence
4. Gallery walk – gave peer feedback

Criteria List

a) Supported by evidence (no contradictory evidence)

b) Shows all steps in process

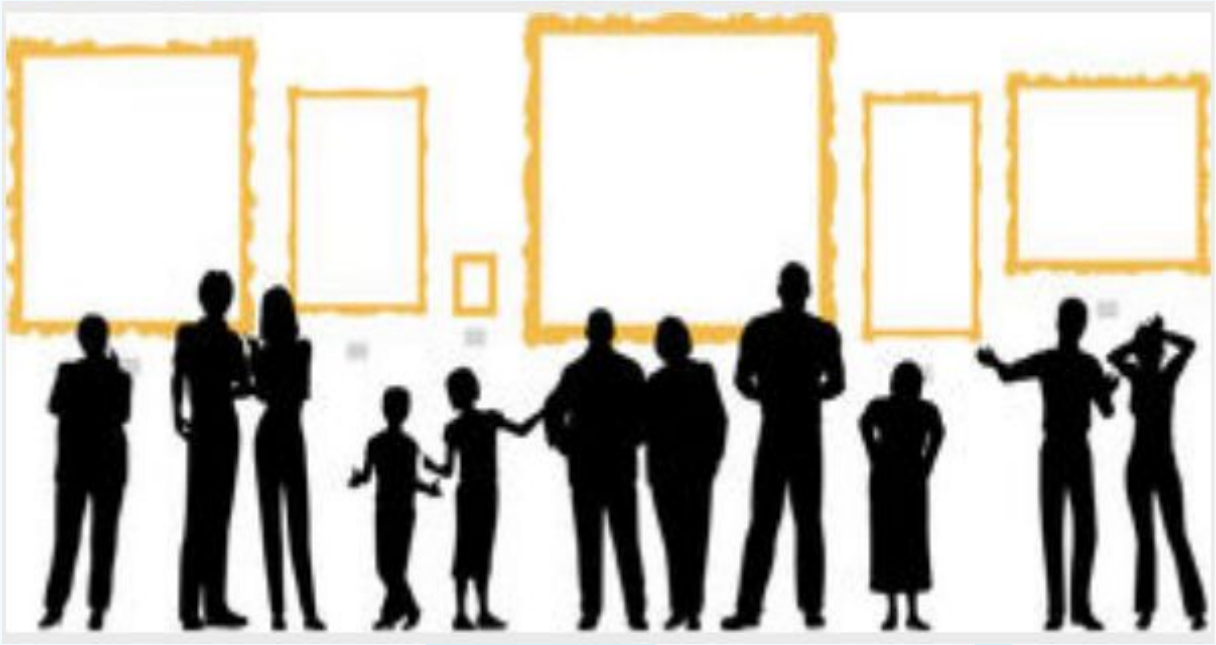
c) Understandable

d) Consistent (doesn't contradict itself)

What will we do today?

1. Review comments you received on your models and revise the models.
2. Update from Fresh Perspectives- new evidence!
3. Use MEME to look at evidence and revise the model
4. Share out.

Gallery Walk



Respond to Peer Feedback

Some ideas to keep in mind

1. Did you thank the reviewer?
2. Did you understand the critique?
3. If so, did you evaluate their ideas in terms of our criteria?
4. Did you tell them if you will be making a change and why?

Revising Models

Work in your groups:

- Review the comments from the other group
  - Do you need clarification?
  - Do you think you can improve your model based on the feedback?
- Make updates to your model based on the comments.
- You can respond to the comments in MEME or go ask the reviewing group for clarification.

Share Out

- What did you learn from the comments?
- Did you make model changes?

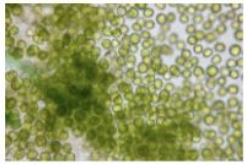
New Evidence - Algae and Oxygen

Algae and Oxygen

Algae are very small plants that live in water. Just like other plants, algae are alive and need nutrients and oxygen to grow. Algae looks green and slimy.

Dr. Euglena is an expert on algae growth in ponds. She took samples of pond water from Blue Pond. Her report concluded that the pond had two types of algae: Spirogyra and Chlorella algae. These are non-toxic algae (not poisonous) and the pond has about 60% Spirogyra and 40% Chlorella.

Spirogyra 

 Chlorella

Dr. Euglena wanted to find out how much dissolved oxygen the algae breathe from the water:

- She took a sample of water, with both types of algae, from Blue Pond and put it in the jar labeled “2”.
- For comparison she took some water with no algae and put it in the jar labeled “0”.
- Dr. Euglena measured the amount of oxygen in each jar. She then measured the amount of oxygen again after 5 hours.

She found that in jar “2” (with algae) the amount of dissolved oxygen was reduced to half the original amount after 5 hours. The amount of dissolved oxygen remained the same in jar “0” (with no algae) and was higher than the amount of oxygen in jar “2”.

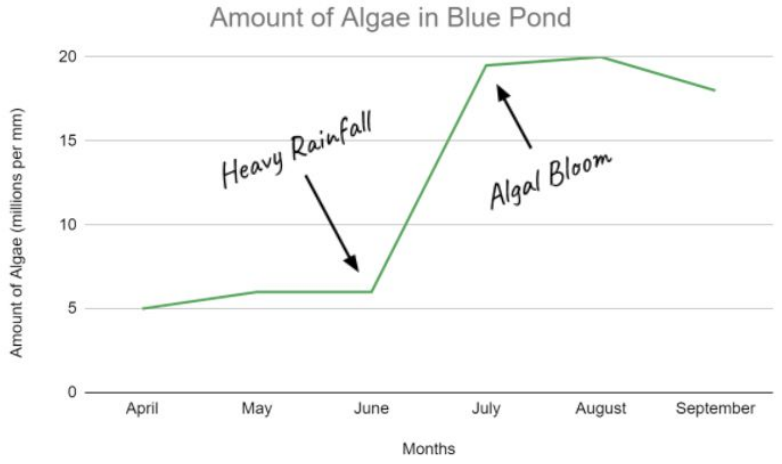
Evidence - Report on Algae Growth

Report on Algae Growth

Algae are living things that need to breathe oxygen dissolved in the water, just like fish. Nutrients help algae grow. The more nutrients there are in the water, the more algae grow and reproduce. Often, during a heavy rainfall, the rain washes the fertilizer, which includes lots of nutrients, into the pond from the surrounding land.

When there is a lot of algae suddenly covering the water, we call that an algal bloom.

Scientists hired by FRESH Org measured the amount of algae in the pond once a month from April until September. They also noted that in early June of that year, there was a very big storm that washed a lot of fertilizer nutrients into the pond. The graph below shows the amount of algae in Blue pond from April until September.



Share Out

- What did you learn from the evidence?
- What changes did you make to your models?
- We need to update Fresh Perspectives on what we did today. What should we tell them?
- After today, what questions do you still have?

See you next time!