Vulnerable Species (Student Handout)

Polyps & People

• Corals tolerate a narrow temperature range between 25 degrees Celsius and 29 degrees Celsius depending on location. Corals bleach in response to prolonged temperature change and not due to rapidly fluctuating temperatures. Lab experiments show that corals bleach when water reaches a constant 32 degrees Celsius.

• Humans are luckier and have proven we can live in a temperature range from -45 degrees to +45 degrees Celsius (this is about -50 to 110+ Fahrenheit) and even a little beyond these extremes due to our technological advances.

• However, there is something in the atmosphere that is effecting temperatures and threatens corals, humans and every other living thing on Earth: CO₂

View Video & Discuss: “350”

• 350 is the number leading scientists say is the safe upper limit for carbon dioxide – measured in “Parts Per Million” or “ppm” – in our atmosphere. 350 ppm is the number humanity needs to get CO₂ (carbon dioxide) levels back to as soon as possible to avoid runaway climate change.

Questions:
1. What problem does this video identify?

2. What solution to the problem does this video suggest?

3. What is the current level of CO₂ in Earth’s atmosphere now? Does this mean we’re all doomed?

4. Explore this website to learn more about what people around the world must do and are doing to solve this problem. Go to: www.350.org/understanding-350#3; www.350.org/about/science; www.350.org/friends; or www.350.org/map. Choose one item you find interesting and describe it below, then share this with the class.
Lecture Notes: Polyps & People

- Corals tolerate a narrow temperature range between 25 degrees Celsius and 29 degrees Celsius depending on location. Corals bleach in response to prolonged temperature change and not due to rapidly fluctuating temperatures. Lab experiments show that corals bleach when water reaches a constant 32 degrees Celsius.

- Humans are luckier and have proven we can live in a temperature range from -45 degrees to +45 degrees Celsius (this is about -50 to 110+ Fahrenheit) and even a little beyond these extremes due to our technological advances.

- However, there is something in the atmosphere that is effecting temperatures and threatens corals, humans and every other living thing on Earth: CO$_2$ (carbon dioxide)

Video & Discussion: 350 ppm

- 350 is the number leading scientists say is the safe upper limit for carbon dioxide – measured in "Parts Per Million" or “ppm” – in our atmosphere. 350 ppm is the number humanity needs to get CO$_2$ levels back to as soon as possible to avoid runaway climate change.


  OR

  ➢ Have a student draw the graphic on the next page on the board.
After reviewing the short video &/or graphic above:

- Ask students: What does problem does this video identify? (answer: Too much CO$_2$ is going into our air & putting us all at risk)

- Ask: What solution to the problem does this video suggest? (answer: If we tell everyone to take action against this, we’ll reduce the risk to our climate, ourselves and our environment)

- Ask: What is the current level of CO$_2$ in Earth’s atmosphere now? (387 ppm!) Does this mean we’re all doomed? (Not yet, but nearly!)

Lecture Notes: 350

- [www.350.org](http://www.350.org) tells us: “We're like the patient that goes to the doctor and learns he’s overweight, or has high cholesterol. He doesn't die immediately—but until he changes his lifestyle and gets back down to the safe zone, he's at risk for heart attack or stroke. The planet is in its danger zone because we’ve poured too much carbon into the atmosphere, and we’re starting to see trouble signs: melting ice caps, spreading drought. We need to scramble back as quickly as we can to safety.”

- Read more about what people around the world must do and are doing to solve this problem at: [http://www.350.org/understanding-350#3](http://www.350.org/understanding-350#3)