

## Teacher Notes: Pre-Assessment Reasoning Activity

**Warm-up:** Print and pass out a pre-assessment worksheet ([Pre-assessment google form](#)) to be completed by each student individually. Or have students complete the form online. Ask students to use an identifier (if you want the survey to remain anonymous) or their name at the top. Encourage students to select an answer for each T/F statement even though they may not know the answer. ([Pre-assessment Key](#)).

After students individually complete their pre-assessment, place students in groups of 4-6 to facilitate a robust table discussion. Hand out one [seminar form](#) to each table and have students put their names at the top. There are 4 sections to fill in so have students take turns recording the discussion.

Instruct the students to go around the table, having each person say whether they chose true or false for each individual statement. The recorder circles whether the entire table agreed or if there was a difference in their answer choices. Even if all students agreed on an answer, ask them to discuss why they made that particular choice. Have the recorder jot down a brief description of what is said. Also, ask the recorder to add any questions or concerns and to note disagreements on the back/bottom of the form.

Gather information from each table by addressing each question. Ask each recorder to report on:

- what their group said and
- any questions they may have had.

Use a google document or some other method for gathering student information. Here is an example of questions students had for the first section of #1-5 below:

Table #	Question #	Questions/Comments
1	1	How much oxygen is in the atmosphere?
2	2, 5, 14	Who is included in the term 'plants'?
3	1, 7, 8	What do we mean by 'atmosphere'?
4	4, 14	Aren't microorganisms harmful?
5	3	We thought photosynthesis makes sugar...chemical energy?

\*Allow each table to contribute at least 1 question until all tables have a chance to report. Continue until you have given students a chance to comment on all statements and have developed a substantial list of questions to address. If students have not brought up a question or comment about 'who' photosynthesizers are and in what numbers, you will have to lead them here. You might ask "what would happen to the oxygen we breathe if most trees die out or are harvested?" to get students thinking about phytoplankton as contributors to the Earth's breathable oxygen.