Name _____ Date _____ Period _____

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The Carbon Cycle

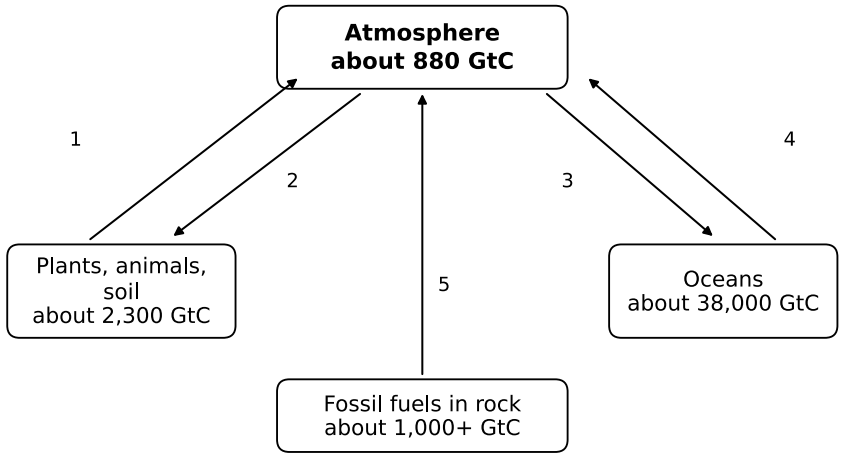
Biology

Answer in complete sentences. Show your work for calculations.

1. Complete the table comparing photosynthesis and cellular respiration.

	Photosynthesis	**Cellular respiration**
Reactants (what goes in)		
Products (what comes out)		
Which organisms do it?		

2. The model shows the carbon cycle.



(a) Which two numbered arrows move carbon out of the atmosphere? Name each process.

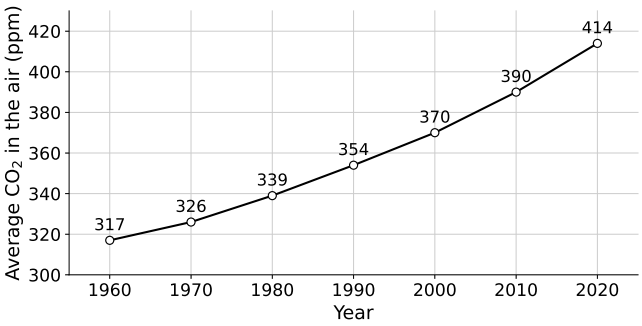
(b) Which numbered arrow is caused by people? Name the process.

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3. The table gives the yearly flows for the arrows in question 2. Find the net change in carbon in the atmosphere each year. Is carbon in the air rising or falling?

Arrow	**1**	**2**	**3**	**4**	**5**
Flow (GtC per year)	117	120	80	77	11

4. The graph shows average CO_2 in the air measured in Hawaii.



(a) Find the average rate of increase from 1960 to 1990 and from 1990 to 2020, in ppm per year.

(b) Is CO_2 rising faster or more slowly now? Suggest a reason.

5. Bromothymol blue turns yellow when CO_2 is added to water and blue when CO_2 is removed. Four sealed tubes of blue solution are left for 24 hours.

Tube	**Contents**	**Light?**	**Color after 24 h**
1	Snail	Light	Yellow
2	Water plant	Light	Blue
3	Snail and water plant	Light	Blue
4	Water plant	Dark	Yellow

(a) Explain the colors in tubes 1 and 2.

(b) Why did tube 4 turn yellow, even though it holds a plant?

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