Energy flow

1. Gross primary production is highest in:
   - prairie
   - tundra
   - a rainforest
   - a desert

2. In the carbon cycle, photosynthesis:
   - releases carbon dioxide into the atmosphere
   - releases carbon dioxide from the oceans
   - fixes carbon in biomass
   - fixes carbon in carbonates

3. In the water cycle, photosynthesis:
   - converts liquid water into solid water
   - converts gaseous water to liquid water
   - fixes hydrogen from water into biomass
   - converts glucose into water

4. The main reason why green plants cannot use nitrogen directly from the air is:
   - the triple bonds holding the nitrogen atoms together in the molecule require too much energy to break them
   - nitrogen gas dissolves in water to produce a strongly acidic solution which would damage the plant cells
   - the nitrogen molecule is too unstable
   - nitrogen molecules are insoluble in water

5. The rate at which energy from sunlight is made available to consumers by green plants is known as a system’s:
   - growth rate
   - gross primary production
   - net primary production
   - productivity

6. A system’s productivity is measured in:
   - kJ m⁻¹ yr⁻¹
   - kJ m s⁻¹
   - kJ m⁻² yr⁻¹
   - kJ m⁻² s⁻¹

7. When light energy is absorbed by chlorophyll during photosynthesis:
   - chlorophyll combines with carbon dioxide to produce glucose
   - chlorophyll decomposes to form glucose and water
   - chlorophyll is converted to ATP
   - a high energy electron is released from the chlorophyll molecule

8. In green plants, energy is stored mainly in:
   - cellulose
   - ATP
   - starch
   - glucose