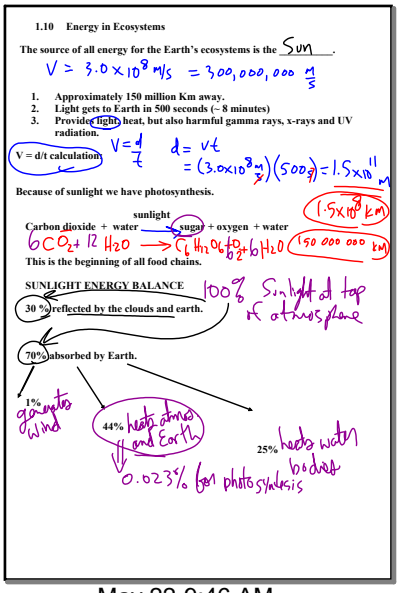

1.10 Energy in Ecosystems

The source of all energy for the Earth's ecosystems is the Sun.

$V = 3.0 \times 10^8$ m/s $= 300,000,000$ m/s

1. Approximately 150 million Km away.
2. Light gets to Earth in 500 seconds (~ 8 minutes)
3. Provides light, heat, but also harmful gamma rays, x-rays and UV radiation.

V = d/t calculation: $V = \frac{d}{t}$ $d = vt$

$= (3.0 \times 10^8 \frac{m}{s})(500 s) = 1.5 \times 10^{11}$ m

1.5×10^8 km

150 000 000 km

Because of sunlight we have photosynthesis.

Carbon dioxide + water $\xrightarrow{\text{sunlight}}$ sugar + oxygen + water

$6CO_2 + 12H_2O \rightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$

This is the beginning of all food chains.

SUNLIGHT ENERGY BALANCE

100% Sunlight at top of atmosphere

30 % reflected by the clouds and earth.

70% absorbed by Earth.

1% gamma wind

44% heats atmos and Earth

0.023% for photosynthesis

25% heats water bodies

May 22-9:46 AM