

Name: _____ Class: _____ Date: _____

5.1: Tracing Atoms and Energy in Plants

Some things you may already know. One thing you already know is that *atoms last forever* in living systems. So all the atoms in a plant must have come from somewhere. Land plants need *water, air, sunlight, and soil nutrients* to live and grow. So those are the sources that the atoms and the energy in plants must come from.

You may not know what kinds of atoms plants are made of. Chemists can take a garden plant like a radish and analyze what kinds of atoms (what elements) it is made of. A lot of a growing plant is water, but if they take the water away and analyze the dry materials in a plant, the first column of the table below shows what they find. Where does each kind of atom in a plant come from?

<i>Kinds of atoms in plants</i>	<i>Where atoms come from</i>		<i>Your reasons for your ideas</i>
Carbon atoms make up about 45% of the dry mass of the plant.	Plants get some carbon atoms from water .	True False	
	Plants get some carbon atoms from air .	True False	
	Plants get some carbon atoms from sunlight .	True False	
	Plants get some carbon atoms from soil .	True False	
Oxygen atoms make up about 45% of the dry mass of the plant	Plants get some oxygen atoms from water .	True False	
	Plants get some oxygen atoms from air .	True False	
	Plants get some oxygen atoms from sunlight .	True False	
	Plants get some oxygen atoms from soil .	True False	
Hydrogen atoms make up about 6% of the dry mass of the plant	Plants get some hydrogen atoms from water .	True False	
	Plants get some hydrogen atoms from air .	True False	
	Plants get some hydrogen atoms from sunlight .	True False	
	Plants get some hydrogen atoms from soil .	True False	
All other elements (mostly nitrogen, potassium, calcium, magnesium, and phosphorous) make up about 4% of the dry mass of the plant	Plants get some other atoms from water .	True False	
	Plants get some other atoms from air .	True False	
	Plants get some other atoms from sunlight .	True False	
	Plants get some other atoms from soil .	True False	

You already know is that *energy lasts forever* in living systems. When dry plants burn, they release chemical energy. So that energy must have come from somewhere. Use the table below to show where the chemical energy comes from.

<i>Kinds of energy in plants</i>	<i>Where energy comes from</i>		<i>Your reasons for your ideas</i>
Where does the <i>chemical energy</i> in a plant come from?	Plants get some energy from water .	True False	
	Plants get some energy from air .	True False	
	Plants get some energy from sunlight .	True False	
	Plants get some energy from soil .	True False	