

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Date: \_\_\_\_\_

## 5.1: Tracing Atoms and Energy in Decomposers

**Some things you may already know.** One thing you already know is that *atoms last forever* in living systems. So all the atoms in an decomposer must have come from somewhere. Decomposers need *water, air, and food* to live and grow. So those are the sources that the atoms and the energy in decomposers must come from.

**You may not know** what kinds of atoms decomposers are made of. Chemists can take an decomposer and analyze what kinds of atoms (what elements) it is made of. The first column of the table below shows what they find (in dry mass, after water has been removed). Where does each kind of atom in an decomposer come from?

<b>Kinds of atoms in plants</b>	<b>Where atoms come from</b>			<b>Your reasons for your ideas</b>	
Carbon atoms make up about 45% of the dry mass of decomposers.	How many carbon atoms come from <b>water</b> ?	All	Some	None	
	How many carbon atoms come from <b>air</b> ?	All	Some	None	
	How many carbon atoms come from <b>food</b> ?	All	Some	None	
Oxygen atoms make up about 45% of the dry mass of decomposers.	How many oxygen atoms come from <b>water</b> ?	All	Some	None	
	How many oxygen atoms come from <b>air</b> ?	All	Some	None	
	How many oxygen atoms come from <b>food</b> ?	All	Some	None	
Hydrogen atoms make up about 5% of the dry mass of decomposers.	How many hydrogen atoms come from <b>water</b> ?	All	Some	None	
	How many hydrogen atoms come from <b>air</b> ?	All	Some	None	
	How many hydrogen atoms come from <b>food</b> ?	All	Some	None	
All other elements (mostly nitrogen, potassium, calcium, magnesium, and phosphorous) make up about 5% of the mass of decomposers.	How many other atoms come from <b>water</b> ?	All	Some	None	
	How many other atoms come from <b>air</b> ?	All	Some	None	
	How many other atoms come from <b>food</b> ?	All	Some	None	

**You already know** is that *energy lasts forever* in living systems. The energy in decomposers must come from somewhere. Use the table below to show where the chemical energy comes from.

Where does the <i>chemical energy</i> in a decomposer come from?	How much of the energy comes from <b>water</b> ?	All	Some	None	Explain your ideas.
	How much of the energy comes from <b>air</b> ?	All	Some	None	
	How much of the energy comes from <b>food</b> ?	All	Some	None	

