**Tracing Atoms and Energy in Animals**

**Review:** Atoms last forever in living systems. This means all the atoms in an organism must have come from somewhere. We know that animals need water, air, and food to live and grow, so that must be where the atoms and energy animals need come from.

What might not be clear is what kinds of atoms animals are made of. Chemists can take an animal and analyze what kinds of atoms (elements) it is made of. The first column of the table below shows what they find. **Where does each kind of atom come from?**

|  |  |  |  |
| --- | --- | --- | --- |
| **Kinds of atoms in animals** | **Where atoms come from** | | |
| *Carbon* atoms make up about 19% of the mass of animals | Animals’ bodies get some carbon atoms from **water**. | True | False |
| Animals’ bodies get some carbon atoms from **air.** | True | False |
| Animals’ bodies get some carbon atoms from **food**. | True | False |
| *Oxygen* atoms make up about 65% of the mass of animals. | Animals’ bodies get some oxygen atoms from **water**. | True | False |
| Animals’ bodies get some oxygen atoms from **air.** | True | False |
| Animals’ bodies get some oxygen atoms from **food**. | True | False |
| *Hydrogen* atoms make up about 10% of the mass of animals | Animals’ bodies get some hydrogen atoms from **water**. | True | False |
| Animals’ bodies get some hydrogen atoms from **air.** | True | False |
| Animals’ bodies get some hydrogen atoms from **food**. | True | False |
| *All other elements* (nitrogen, potassium, calcium, magnesium, phosphorus) make up about 6% of the mass of animals. | Animals’ bodies get some other atoms from **water**. | True | False |
| Animals’ bodies get some other atoms from **air.** | True | False |
| Animals’ bodies get some other atoms from **food**. | True | False |

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Kinds of energy in animals** | **Where energy come from** | | |
| Where does the **chemical energy** in an animal come from? | Animals’ bodies get chemical energy from **water**. | True | False |
| Animals’ bodies get chemical energy from **air.** | True | False |
| Animals’ bodies get chemical energy from **food**. | True | False |