

## WHERE DOES THE MASS OF A TREE COME FROM?



Many people believe the bulk of a tree comes from the soil or the water, but most of its mass is carbon, which comes from carbon dioxide in the air.

**CARBON DIOXIDE**

**WATER**

**GLUCOSE**

**OXYGEN**

from the air,  
contains carbon.

contains carbon  
from the air.



chlorophyll

Structures like branches and roots are formed using glucose, which is produced from carbon dioxide in the air.

## WHY DO MISCONCEPTIONS MATTER?

**MRS  
GREN**

### They can hinder understanding of more complex ideas

To help children understand ideas about cells, systems and organisms, it's important they appreciate that living organisms may not show all the characteristic processes of life in an obvious way, or all of the time.



### They influence how we assimilate new ideas

To help children understand ideas about how and why things react, and how mass is conserved, they need to understand that substances don't simply disappear when they burn, and that air is a substance with mass.

## FROM LITTLE ACORNS...



## HOW DO BIG OAK TREES GROW?



## COMMON MISCONCEPTIONS



### ARE SEEDS LIVING THINGS?

Many children believe:

- Seeds aren't alive, or they're only alive once they are planted.
- Trees aren't alive because they don't move around on their own.
- Things like fire and clouds are alive because they appear to be mobile and change shape.



### DOES A TREE BREATHE?

Many children believe:

- Plants 'breathe' in reverse, inhaling carbon dioxide and exhaling oxygen.
- Respiration is the same as breathing.
- Plants carry out photosynthesis but only animals carry out respiration.



### WHERE DOES WOOD GO WHEN IT BURNS?

Many children believe:

- Air is 'empty' or is just a single gas.
- When wood burns, part of it disappears and no longer exists.
- Wood is more dense than water.

## PLANNING AROUND MISCONCEPTIONS (RADAAR)



**RESEARCH  
ANTICIPATE**

Consider common misconceptions before you teach.



**DIAGNOSE  
ADDRESS**

Uncover misunderstandings and build on the ideas that children bring with them.



**ASSESS  
REVIEW**

Revisit key ideas and make links with other topics.