Hello Trees Resource Sheet

What to look for outdoors in Autumn

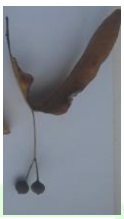
Tree seeds with wings

Many different trees have seeds with wings.

Maple seeds

Ash seeds

Hornbeam seed



Lime seeds

To grow wings as well as seeds, uses extra resources and is extra work for the tree.
Trees seldom make extra work for themselves unless it gives the tree an advantage.

What advantage do you think the wings are to the tree?
Clues: winged seeds are dispersed by the wind; wings are for flying!

Yes, the wings keep the seed in the air so the wind carries the seed further.

Why is it an advantage to the tree that the seeds are carried further through the air?
Yes, seeds carried further from the tree will have better chances of growing into a tree:

- Seedlings will be out of the shadow of their parent and get more light.
- Seedlings will not have to compete with the parent for water and soil nutrients.

Can you think of any more ways in which it would be better

- for the *seed*, that it is further away from the parent;
- for the *parent tree*, that its seeds grow further away from it;
- for the *survival of the species*, that seeds are carried further from parent trees?

We are saying '<u>Winged seeds take longer to reach the ground than seeds without wings</u>'.

This is our **hypothesis**: a statement of what we think to be true.

How can we test our hypothesis – make sure that our hypothesis is true?
I suggest we:

1. Get a partner to work with us
2. Collect as many winged seeds that we can find.
3. One partner drops the winged seeds from as high as it is safe to climb.
4. The other partner times how long the seeds take to reach the ground.
5. Make a note of the times.
6. Swap places to experience both jobs and double check results.
7. Cut the wings off the seeds, then drop the seeds and time their fall.
8. If the winged seeds take longer to reach the ground than the seeds without wings, we will have proved that our hypothesis is true.
9. Always have someone with you and climb on to something steady.

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Try to keep as much as possible the same: e.g. drop the seeds from the same height.

Think of things that could vary. For example, if you are outside the wind might be stronger at different times. Perhaps you could go inside.

You could put your results in a table:

TIME TAKEN FOR SEEDS TO REACH THE GROUND

	Trail 1		Trial 2		Trial 3		Trial 4		Trial 5	
	winged	bare	winged	bare	winged	bare	winged	bare	winged	Bare
Maple										
Ash										
Hornbeam										
Lime										

Bare maple, ash, hornbeam and lime seeds

My bare seeds plummeted too fast for me to time their fall. However, I can confidently confirm our hypothesis that 'Winged seeds take longer to reach the ground than seeds without wings'

I am sure you discovered what I discovered: the winged seeds do not only float down more gently, the winged seeds spin as they drop.

This is true for all my winged seeds: maple, ash, hornbeam and lime.

Once they start to spin, their speed towards the ground slows right down.

Can you see what causes the seeds to spin?

Did you notice the twists in the wings of the ash seed - and the lime?

I found that a *pair* of maple winged seeds dropped more quickly than a *single* wing. That surprised me. I thought the pair would spin better: like helicopter blades.

Did you notice that the hornbeam wings were smaller on one side than the other?

It seems to me that uneven shapes and twisted shapes spin.

Is that what you think, too?

Is our hypothesis 'Uneven or twisted things spin, evenly balanced things don't spin'?

Perhaps you can think of a way to test our hypothesis by folding paper 'aeroplanes'.

Over to you!

Use our Facebook page to let us know how you get on.

Find out more about how to identify trees and other fun things at Hello Trees.