



## CHANGING THE EARTH- ACTIVITY SHEET 02

We live on the Earth. It is a great home for life.  
Now imagine that you could change the Earth.  
What would happen? Would we still be able to live here?

### Part 1: Cause and effect

Suppose you changed the tilt of the Earth, or moved it into a different orbit.  
What effect would this have?

- Study the list of changes; predict what effect each might have.  
Match each change to one of the effects in the second list.
- Then, for each cause and effect, explain why the cause produces the effect.

#### List 1: Changes

You move the Earth into a circular orbit further from the Sun.  
You straighten up the Earth, so that its axis is no longer tilted.  
You make the Earth spin more slowly on its axis.  
You move the Earth into an orbit which has an elliptical shape (like a squashed circle).  
You tip the Earth so that its axis is more tilted.  
You add extra carbon dioxide to the atmosphere.

#### List 2: Effects

There are bigger differences between the seasons – summer is hotter and winter is colder.  
At some times of the year, the Earth is much hotter than at others.  
During the daytime, temperatures rise higher; at night, they get much colder.  
Average temperatures on the Earth are higher.  
There are no longer any differences between the seasons.  
Average temperatures on the Earth are lower.

### Part 2: Consequences for life

How would life be affected if you changed the Earth and its orbit?

- For each of the effects above, decide how life on Earth would be affected.  
Might life be wiped out? Would it be easier for life to continue – for example, would the North and South Poles become inhabitable?
- Now design a new planet – Planet 10. It must be suitable for life to inhabit it.  
Decide on its important features – size, tilt, spin, orbit, atmosphere and so on.
- Make an illustration of your planet, give it a name, and add notes to explain why it will be a good home for life.





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### Answer to Part 1:

**Change:** You move the Earth into a circular orbit further from the Sun.

**Effect:** **Average temperatures on the Earth are lower.**

**Change:** You straighten up the Earth, so that its axis is no longer tilted.

**Effect:** **There are no longer any differences between the seasons.**

**Change:** You make the Earth spin more slowly on its axis.

**Effect:** **During the daytime, temperatures rise higher; at night, they get much colder.**

**Change:** You move the Earth into an orbit which has an elliptical shape (like a squashed circle).

**Effect:** **At some times of the year, the Earth is much hotter than at others.**

**Change:** You tip the Earth so that its axis is more tilted.

**Effect:** **There are bigger differences between the seasons – summer is hotter and winter is colder.**

**Change:** You add extra carbon dioxide to the atmosphere.

**Effect:** **Average temperatures on the Earth are higher.**

