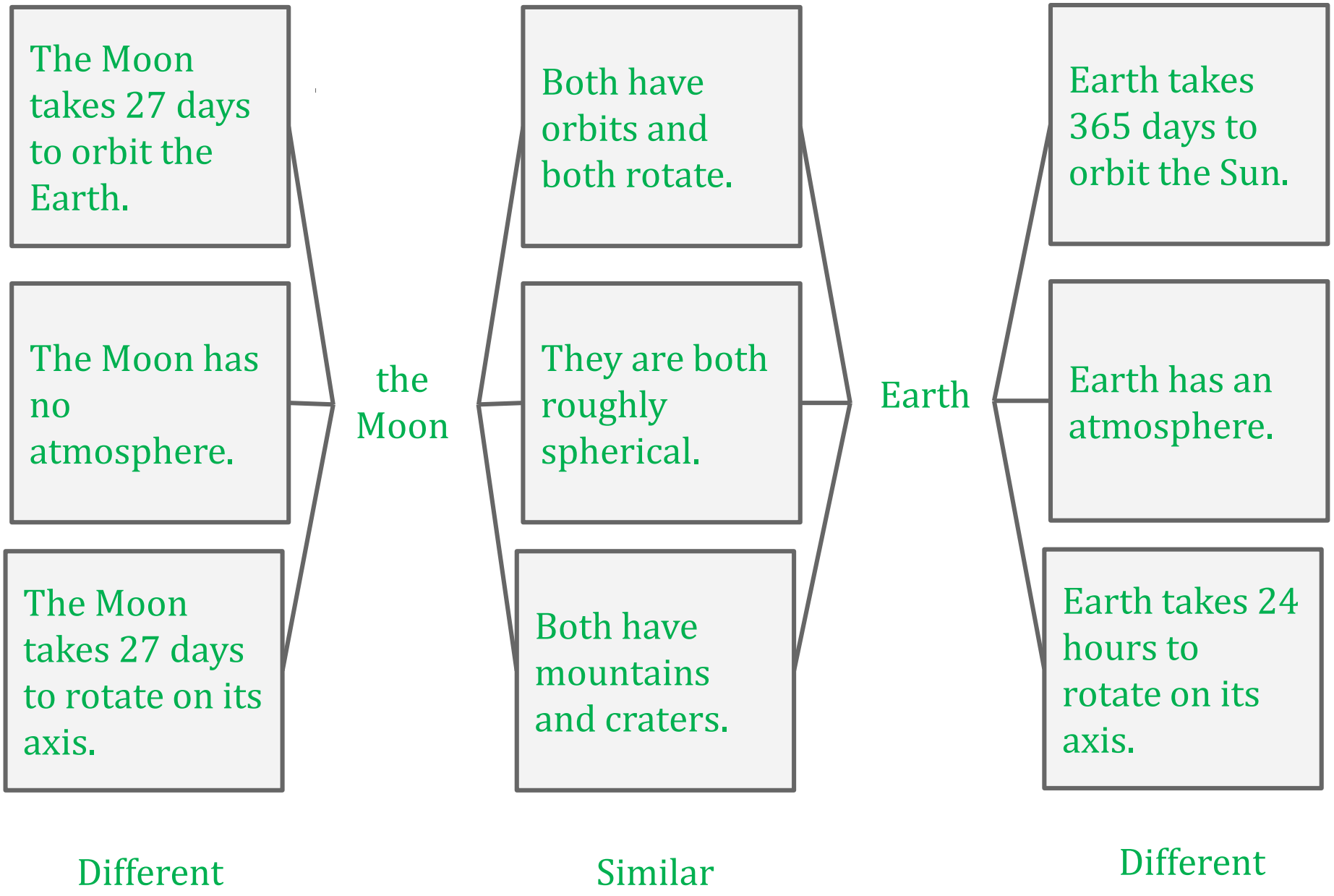
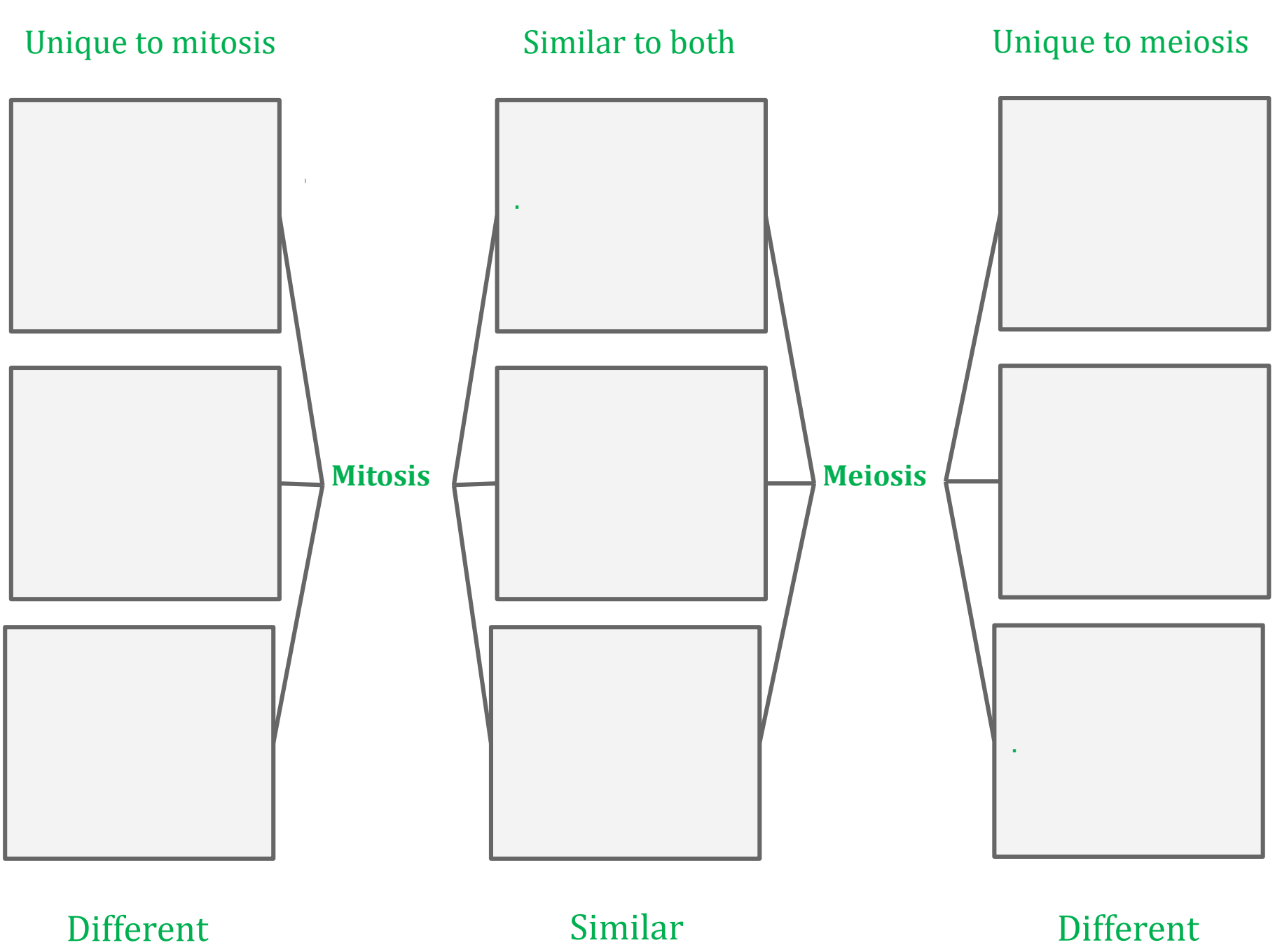
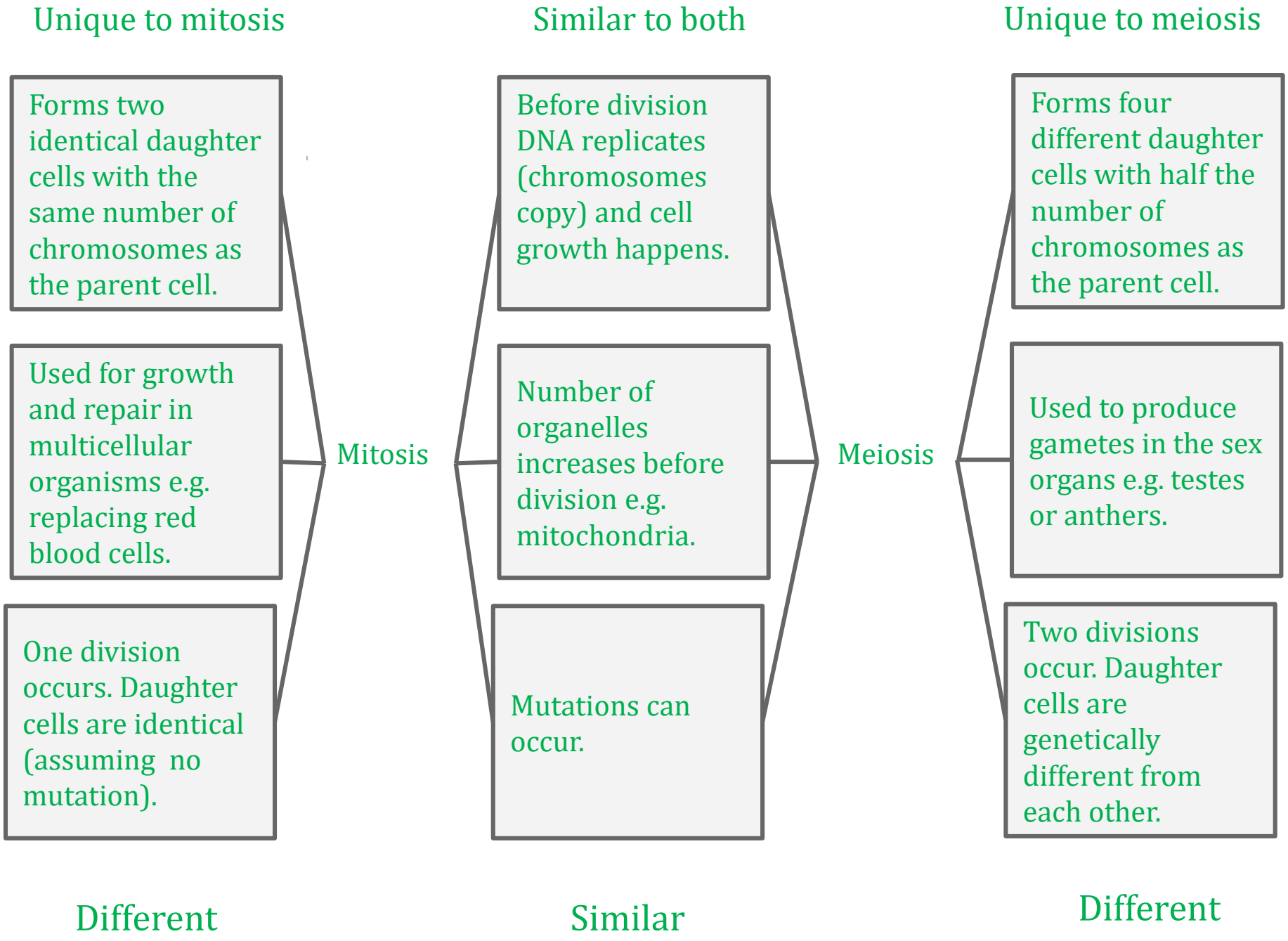
Topic	Mitosis and meiosis	**Level**	GCSE (or any course for students aged 14-16)
Outcomes	To compare and contrast mitosis and meiosis with respect to the: • number of daughter cells produced • chromosome number before and after cell division • DNA replication and cell growth before cell division • genetic variation of the daughter cells • purpose of the cell division		
Information for teachers	This activity is a great way to get students to compare and contrast mitosis with meiosis. It could serve as a good way to recap mitosis once you have introduced meiosis. Spend time showing how the activity works looking at the example on slide two using Earth and the Moon. Students then complete the activity for mitosis and meiosis. Once students have had the opportunity to complete the boxes they could discuss their ideas with their peers and make improvements. After reviewing the ideas in the class, ask students to answer the question on slide five to consolidate their thinking. Before they start writing, spend some time modelling how to use connectives in a sentence. Students could then read out their answers for feedback, or this could be peer assessed/teacher marked. This activity was based on an idea from The Big Ideas of Physics and How to Teach Them by Ben Rogers.		
Other resources	Other resources on cells are here: http://thescienceteacher.co.uk/cells/		

An example, comparing and contrasting Earth with the Moon.




Unique to mitosis
Similar to both
Unique to meiosis
Mitosis
Meiosis
Different
Similar
Different


Unique to mitosis
Similar to both
Unique to meiosis
Forms two identical daughter cells with the same number of chromosomes as the parent cell.
Used for growth and repair in multicellular organisms e.g. replacing red blood cells.
One division occurs. Daughter cells are identical (assuming no mutation).
Mitosis
Before division DNA replicates (chromosomes copy) and cell growth happens.
Number of organelles increases before division e.g. mitochondria.
Mutations can occur.
Meiosis
Forms four different daughter cells with half the number of chromosomes as the parent cell.
Used to produce gametes in the sex organs e.g. testes or anthers.
Two divisions occur. Daughter cells are genetically different from each other.
Different
Similar
Different

Compare and contrast mitosis with meiosis. In your answer refer to:

- the purpose of each type of cell division.
- the chromosome number of the daughter cells compared to the parent cell.
- the genetic variation of the daughter cells.
- what happens inside the cell before mitosis and meiosis takes place.

Helpful connectives: whereas, similarly, however, but