Cambrian Fact File

Algae
Here we are, right at the very beginning of the evolution of plants; algae were the first photosynthetic cells on Earth. Along with sponges, algae were also among the first multi-celled organisms ever seen on this planet – not a bad list of achievements for such tiny single cells!

Recent relations
Recent research has suggested that nearly all plants we see on land – trees, flowers, the moss on roofs and the grass in your garden – are all descended from single-celled green algae very much like these.

Eat and be eaten
Algae were the very first photosynthetic cells on Earth. They were able to trap the energy of sunlight into various molecules and then use that as a source of energy for themselves – and they flourished in the Cambrian seas. Of course, it also meant that they were eaten by almost everything else – sponges, worms, trilobites – and so they developed other features such as flagella to help them move around, and thick cell walls and layers of slime to protect them. Eventually they began to gather together in larger groups and some even settled down on the sea floor and grew into the first true plants.

Algae were important for several reasons other than providing food for everyone. Firstly, by developing photosynthesis, they began the process of adding oxygen into the atmosphere. At first, this may have been a disaster for life – oxygen can be toxic in high concentrations – but eventually it allowed a wide range of organisms to evolve and changed the entire ecosystem of the planet.

Becoming a body
Along with sponges, algae were also among the first multi-celled organisms. This is a very important step on the way to evolving the life we see today – cells share resources, learn to communicate with each other and specialise for certain jobs when they become a body. Even today, algae display a huge range of body shapes and sizes, ranging from some of the smallest living things on Earth to some of the largest (some kelps reach over 60 m in length!).

The first family
Their final contribution to the way life evolved is, well, sex. Even today, algae have a range of ways of making new algae with simple cell splitting to produce two daughter clone cells at one end of the spectrum, to complex life cycles involving swimming gamete cells and genetic shuffling at the other end. Again, how they discovered sex is not known, but the appearance of algae on Earth meant that Life was never going to be the same again!