

Science 9 – Home Learning Week 9

This week we are looking at the life cycle of a star.

Read the notes added and then click on the next assignment. You will fill in the answers and send them to me at Jessica.doucet@nbed.nb.ca

The Life Cycle of a Star

- Stars have a life because they follow a predictable series of stages.
- They are born, they develop and then they die.
- Each life may take billions of years or more.
- All stars begin their lives in **nebulas** – huge clouds of dust and gases (mainly helium and hydrogen).
- As the clumps of dust and gases swirl around, they bump into each other and get bigger. Their gravity then gets stronger, so they attract more parts together and become more tightly packed.
- Eventually, the clumps become so dense and hot that **nuclear fission** starts, and they become two new stars.
- When a star nears the end of its life, it runs out of hydrogen and other fuels that are needed to produce energy. The pressure holding the star together becomes reduced, so the star swells up and cools down at the same time.
- So, in old age, the star becomes larger and redder. (*Note: blue stars have higher temperatures than red stars)
- **Red giants** – stars the size of the Sun or smaller
- **Red supergiants** – stars with masses 10 times (or more) larger than the Sun.
- **White dwarf** – a small star created by remaining material when a red giant dies.
- **Supernova** – an enormous explosion that occurs at the end of a large star's life. This creates either a neutron star or a black hole.
- **Neutron star** – an extremely dense star composed of neutrons that is created when a star about 10 times the mass of the Sun dies.
- **Black hole** – a small, very dense object with a force of gravity so strong that nothing can escape from it, that is created when a star about 30 times the mass of the Sun dies.

Email me if you have any questions! Have a great week 😊

Ms. Doucet