**Rocket Design**

Four Main Parts of a Rocket

There are four main parts of a rocket that are made up of various other parts. The four main parts are the structure (body), payload, guidance, and propulsion. These parts are usually stacked on top of each other. The payload is the top, then the guidance and lastly the propulsion.

**Structure**

The **structure** is the frame of the rocket. It is in the shape of a cylinder with a pointed nose and fins. Although space shuttle rockets can weigh tens of thousands of kilos, they need to be as light as possible to be propelled into outer space. On the same note, they also need to be strong enough to withstand the large thrust from the ground.

**Payload**

The **payload** is the pointed nose of the rocket which can be fireworks, a missile, a satellite, or a space shuttle. The first rockets were designed to get fireworks high in the sky to explode for entertainment during a celebration. Then, during World War II, explosives were placed in the payload and launched to destroy targets. Later, spacecraft were designed and positioned in the payload to be launched into outer space. Today, rockets are still used for fireworks, missiles, and spacecraft.

**Guidance**

How does the rocket control its movement? The **guidance** portion of a rocket helps to keep the rocket stable during takeoff and controls the rocket when it needs to move. It is like the brain of the rocket and contains computers, radars, and sensors. After the rocket launches, the guidance system directs it to its intended location.

**Propulsion**

**Propulsion** is the part that moves the rocket towards the sky. Propulsion uses a mixture of liquid fuel like kerosene and oxidizer such as liquid oxygen. In order for the rocket to get to outer space its speed needs to be over 40,00 km/h. After the rocket has reached outer space it will drop its larger fuel tanks to reduce weight.

Source: http://study.com/academy/lesson/parts-of-a-rocket-lesson-for-kids.html







