(Note two events are required but only tides have been selected to show the range of student answers.)

**Why there are tides on earth**

Tides on Earth are caused by the gravitation pull of the moon on a body of water where the water molecules are free to move. The gravitational attraction of the moon on Earth also pulls the rocks but they only move a small amount. The water can move a larger distance so we see high tides. The sun, being bigger than the moon but further away also pulls against oceans. Its force is about half that of the moons. When the moon and the sun are in line with each other the forces are added together and we get spring tides that are higher than normal and when the moon and the sun are at right angles to each other the forces are partially cancelled out, we get neap tides which are smaller than normal (1). Any place on Earth has varying tide heights and these tidal heights depend on the local geography. The Bay of Fundy in Canada has the highest tidal range for any place on Earth.

In this diagram, you can see that the moon's gravitational force pulls on water in the oceans so that there are "bulges" in the ocean on both sides of the planet. The earth rotates through these bulges once a day so there is two high tides and two low tides a day. The timing is longer than 24 hours so tide times shift. King tides occur when the moon and sun align in a straight line and the moon is close to Earth on its elliptical orbit. These tides are very big and cause flooding in low lying areas. (2) This is known as the perigee and at this point the moon is only 362 600km from Earth, at the apogee the moon is 405 000km from Earth.

So in summary the orbits of the moon and the sun affect the tides and their sizes on Earth.