

## BGE Space and Forces Homework 1

**Read the passage which follows and then answer the questions on the risks and benefits of space exploration.**

For thousands of years, men and women have studied the stars and looked at what we call 'space'. Only recently, in the last 60 years, have we had the means to actually go into space, send probes to distant planets and use ever more powerful telescopes. The exploration of space has brought great benefit along with costs and risks.



### Benefits

**Communication** – modern communication uses satellites. Would you be without your mobile phone or Sky television?

**Satellite navigation** – this is not only used in cars but a whole range of industries including shipping, mining and aviation. The oil industry uses it to accurately position drilling rigs.

**Jobs** – there are thousands of people employed directly by the space industry but there are probably millions who are employed in spin off technology such as satellite communication including mobile phones and television.

**Spin off technologies** – Many applications that are developed for the space industry have been adopted widely and are now part of everyday life such as bar codes, miniaturised electronics, scratch resistant glasses, industrial materials, cordless power tools, water purification systems – even non-stick coatings for frying pans!

**Mapping** – satellites are able to accurately map the surface of the earth which aids important industries such as mining and can improve land use.

**Weather monitoring** – predicting weather patterns and anticipating dangerous hurricanes and tropical storms is now made more accurate and easier through using satellite imaging.

**Satisfying our curiosity** – finding out more about the universe and our place in it has become possible through the advances in space exploration. In the past 50 years we have sent men to the moon and probes to distant planets.

### Risks and Costs

**Pollution** of space with debris from satellites and spacecraft. There is a risk that some debris may fall to Earth and reach the Earth's surface. The risk of being hit is infinitely small though

**Danger to life** – several astronauts have lost their lives in both the Apollo moon missions and shuttle missions.

**Cost** – the budget for space exploration is high. Could that money be better spent elsewhere?

**Answer these questions on the passage in your own words.**

(a) How long ago did space exploration begin?

\_\_\_\_\_ (1)

(b) How are modern communication systems dependent on space?

\_\_\_\_\_  
\_\_\_\_\_ (1)

(c) Are more people employed in the space industry directly or in jobs which depend upon space 'spin-offs'?

\_\_\_\_\_ (1)

(d) How do modern maps of the earth depend upon the exploration of space?

\_\_\_\_\_  
\_\_\_\_\_ (1)

(e) It is hoped to send a manned mission to the planet Mars.  
Suggest two risks of sending people to Mars.

\_\_\_\_\_  
\_\_\_\_\_ (2)