

GCSE (9-1) Astronomy

10.4 The solar wind

Pupil Worksheet



Week **32** Topic **10.4**



Spec. refs **10.10, 10.11, 10.12**

1. The image on the left shows the ion tail of a comet. The image on the right shows the Aurora Borealis.



The phenomena in these two images are both effects due to the same cause.

Which of the following causes is this? Choose from:

Earth's magnetosphere	solar wind	Van Allen Belts
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Your answer:

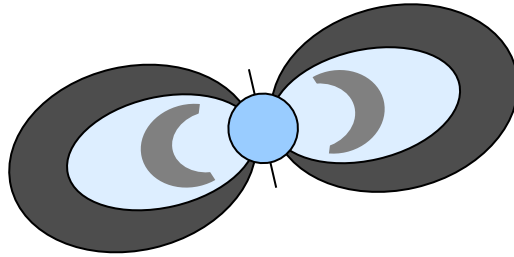
(1)

2. From which part of the Sun does the 'slow' solar wind originate?

- A** corona
- B** photosphere
- C** prominences
- D** sunspots

(1)

Questions 3 and 4. The diagram shows a representation of the Earth's Van Allen Belts.



3. What is the main constituent of the **outer** belt?

Choose from:

protons	neutrons	electrons
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Your answer:

(1)

4. What is the main constituent of the **inner** belt?

Choose from:

protons	neutrons	electrons
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Your answer:

(1)

5. Which pupil is correct?

Chunhua: The Earth's magnetic field is similar to that of a bar magnet with its south pole in the northern hemisphere.

Danny: The Earth's magnetic field is similar to that of a bar magnet with its south pole in the southern hemisphere.

Your answer:

(1)

6. Which **two** of the following are likely causes of 'gusts' in the fast solar wind? Choose from:

- | | | |
|---------------------|---------------------------|-------------------------------|
| solar flares | geomagnetic storms | coronal mass ejections |
|---------------------|---------------------------|-------------------------------|

Your answers: and

(2)

7. Which of the following is **NOT** associated with the solar wind?

- A** cometary tails
- B** geomagnetic storms
- C** height of satellite orbits
- D** power grid overloads

(1)

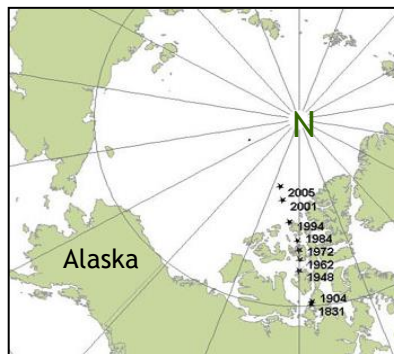
8. The Earth's magnetic field is caused by the motion of charged particles (electric currents) in one of its major divisions.

In which major region do these charged particles flow?

- A** atmosphere
- B** inner core
- C** mantle
- D** outer core

(1)

9. The map shows how the location of the Earth's north pole has changed during the last two centuries.



In which cardinal direction has the location of the north pole generally migrated during this time interval?

Your answer:

(1)

Solutions

1. solar wind (1 mark)
2. **A** (1)
3. electrons (1)
4. protons (1)
5. Chunhua (1)
6. solar flares (1); coronal mass ejections (1)
7. **C** (1)
8. **D** (1)
9. north (1)

Your score:

/ 10