Magnetic pigeons

Some people keep homing pigeons for sport. Birds are taken hundreds of miles away from their home in a lorry, and then they are all released together. The owner of the first bird to fly back to its own loft wins the pigeon race.

How do all these birds find their way? Some scientists think that the birds use the angle of the Sun to tell them which way to go. Some people think that the birds use the Earth's magnetism.

German scientists tried an experiment to find out if pigeons used magnetism or the Sun. They hatched three sets of pigeons. Group A grew up normally, and could see the Sun all day. The other two groups only saw the Sun in the afternoons. The birds were taken a long way from home, and released on a sunny morning.

- The birds in Group A flew straight home.
- Group B birds, which had never seen the angle of the Sun in the morning, also flew home normally.
- Group C birds had small magnets glued to their backs. These magnets were strong enough to stop the pigeons detecting the Earth's magnetism. The birds in this group could not find their way back home.

1. How does a pigeon race work?
2. There are two things that pigeons might use to find their way home. What are they?
3. The German scientists thought that the pigeons in Group B were not using the Sun to find their way home.
   a. Why did they think this?
   b. What could they have been using instead?
4. How did the Group C pigeons show that pigeons normally use the Earth's magnetism to find their way?
5. Write a conclusion from the research carried out.
True north and magnetic north

Maps are usually drawn with true north at the top. True north is the direction that points towards the North Pole. A compass needle does not point in the same direction as north on the map. It points to the north magnetic pole. We say that the compass points to magnetic north. The angle between magnetic north and true north is called the magnetic variation.

If you are using a map and compass to walk in the countryside, you need to adjust the reading on your compass to allow for magnetic variation.

Orienteering is a sport in which runners have to find their way from point to point as fast as possible. Orienteers use special maps which are printed with magnetic north at the top.

1. What is the difference between true north and magnetic north?
2. Why don't compass needles point to true north?
3. What does magnetic variation mean?
4. What would happen if walkers did not adjust their compass readings to account for magnetic variation?
5. a. What is special about orienteering maps?
   b. Why do you think orienteering maps are printed this way?
6. Imagine that you have been orienteering for the first time. Write a letter to a friend telling them what you had to do.