Seeing space
Part 1: The Orion nebula

Name ........................................

The constellation Orion can be seen in the sky in winter in the northern hemisphere. Look at the pictures of three different parts of Orion. Complete the observation table and answer the questions. (Use the reference sheet to help you.)

Observation table

<table>
<thead>
<tr>
<th>Picture name</th>
<th>Colours</th>
<th>What makes the colours?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Orion Nebula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Horsehead Nebula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflection nebula in Orion’s sword</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Questions

1. What is the most common chemical element shown in the pictures?
2. Why is this chemical element the most common?
3. What creates the shape of the ‘horsehead’ in the Horsehead Nebula picture?
4. Why is a telescope needed to see the colours in the pictures?
Seeing space
Part 2: The Interstellar Medium (ISM)

Look at the four pictures carefully. They show the same part of the Milky Way. Use the reference sheet to help you answer the questions about the pictures.

Picture 1: Milky Way - visible light
Use the reference sheet to find out the substances that are present.

Picture 2: Milky Way - showing atomic hydrogen
Compare picture 2 with picture 1. Where are the brightest patches of atomic hydrogen?

Picture 3: Milky Way - showing molecular hydrogen
Compare picture 3 with picture 1. Where is the molecular hydrogen found?

Picture 4: Milky Way - showing complex molecules
Compare picture 4 with picture 1. Where are the complex molecules found?

What do you notice about what is in the Interstellar Medium (ISM)?

Where does the stuff in the ISM come from? Discuss an answer with your partner.