Phases of Matter:

**Solid**
Matter that has definite volume and shape.
The molecules are packed together tightly and move slowly.

**Liquid**
Matter that has definite volume but not shape.
Since the molecules of a liquid are loosely packed and move with greater speed, a liquid can flow and spread out.

**Gas**
Matter that has no definite volume or shape.
Molecules of a gas are so loosely arranged and move so rapidly that they will fill their container.

Phase Change Descriptions:

**Melting**
the change from solid to liquid.

**Freezing**
the change from liquid to solid.

**Vaporization**
the change from liquid to gas.

**Evaporation**
vaporization from the surface of a liquid.

**Boiling**
vaporization from within as well as from the surface of a liquid.

**Condensation**
the change from gas to liquid.

**Sublimation**
the change from solid to gas.

**Deposition**
the change from gas to solid.

Fill in the phase changes in the blank provided.
**Heating Curve**

**Phase Change Diagram**

B = ____________________________
- temperature at which ________ intermolecular bonds are broken, turning substance into a liquid.

    Melting, also known as ________________

What does intermolecular mean?? _________________________________________________________________

D = ____________________________
- temperature at which ________________ intermolecular bonds are broken, turning substance into a gas.

    Boiling, also known as ____________________
<table>
<thead>
<tr>
<th>Section</th>
<th>What’s Happening</th>
<th># of Phases Present</th>
<th>PE or KE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The graph was drawn from data collected as a substance was heated at a constant rate. Use the graph and vocabulary from first page to answer the following questions.

At **point A**, the beginning of observations, the substance exists in a solid state. Material in this phase has _______________ volume and _______________ shape. With each passing minute, _______________ is added to the substance. This causes the molecules of the substance to _______________ more rapidly which we detect by a _______________ rise in the substance. At **point B**, the temperature of the substance is ______°C. The solid begins to _______________. At point C, the substance is completely _______________ or in a _______________ state. Material in this phase has _______________ volume and _______________ shape. The energy put to the substance between minutes 5 and 9 was used to convert the substance from a _______________ to a _______________.

Between 9 and 13 minutes, the added energy increases the _______________ of the substance. During the time from **point D to point E**, the liquid is _______________. By **point E**, the substance is completely in the _______________ phase. Material in this phase has _______________ volume and _______________ shape. The energy put to the substance between minutes 13 and 18 converted the substance from a _______________ to a _______________ state. Beyond **point E**, the substance is still in the _______________ phase, but the molecules are moving _______________ as indicated by the increasing temperature.