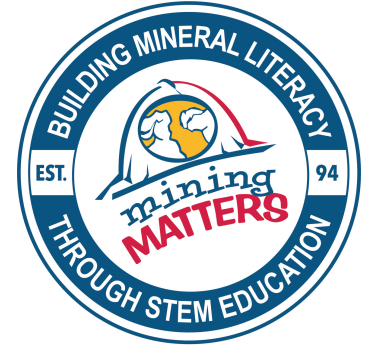


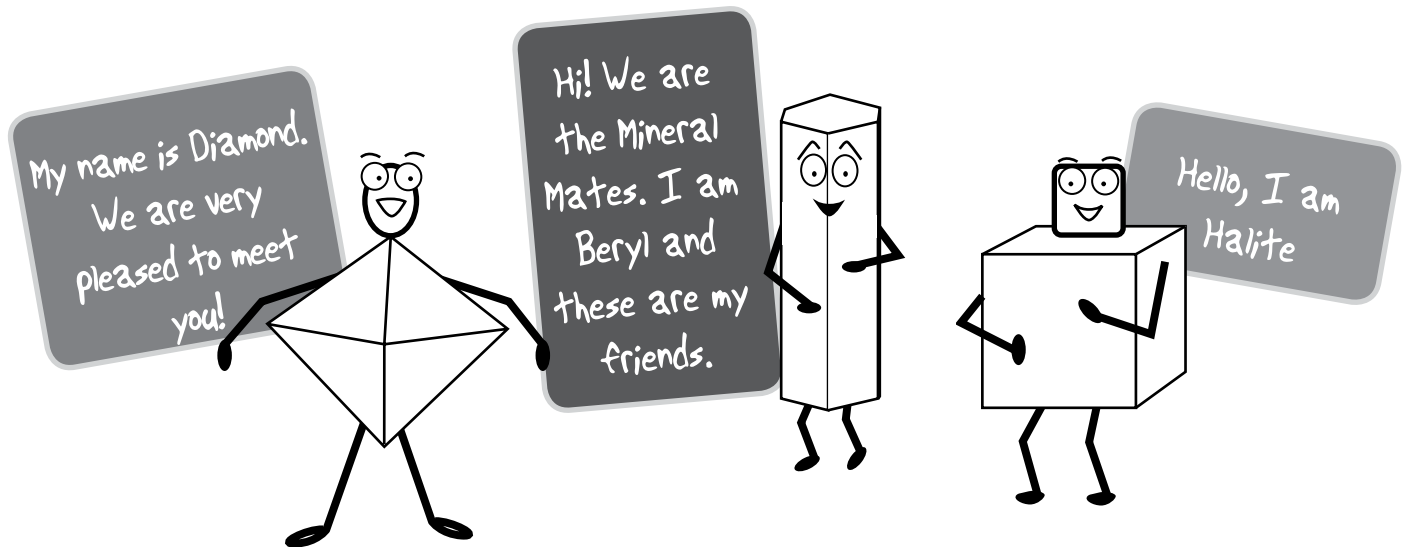
Creating Mineral Mates



What to do

- 1** The next page has information about three **Mineral Mates**, "Diamond," "Beryl," and "Halite." You are going to build the **Mineral Mates** from the geometric nets provided.
- 2** Read about the **Mineral Mates**. Choose the words that describe the properties of the **Mineral Mates** and write them on the blank faces of the geometric nets.
- 3** Colour, cut out, fold, and tape or glue your geometric net into a three-dimensional shape. Use craft materials to make legs and arms for the three **Mineral Mates**, heads for "Diamond" and "Halite," and a face for "Beryl."
- 4** Display your shape.
- 5** Present your **Mineral Mates'** unique physical properties to your family.
- 6** Look carefully at your three-dimensional shapes and answer the following questions on the worksheet provided.
 - a) What two-dimensional shape (polygon) makes up an octahedron?
 - b) How many faces are there on an octahedron?
 - c) What two-dimensional shape (polygon) makes up a cube?
 - d) How many faces are there on a cube?
 - e) What two-dimensional shapes (polygons) make up a hexagonal prism?
 - f) How many faces are there in all on a hexagonal prism?

Introducing the Mineral Mates



Use geometric nets to create your own three-dimension Mineral Mates! You'll need copies of the geometric nets, glue, scissors, coloured pencils and craft materials. If you don't have a printer, you can trace the patterns on pieces of paper. Each of the **Mineral Mates** is a mineral that occurs in the crystal shape shown above.

Halite is a transparent (clear) to white mineral that occurs as cubes and has a salty taste. It can be scratched by a nail and is commonly called rock salt. We use salt to season our food and on our roads in the winter to dissolve ice and snow. Halite is mined in southwestern Ontario near the towns of Goderich and Windsor.

Diamond is a gemstone that is formed at very high temperatures and pressures. It is a transparent (clear) to translucent (cloudy) mineral that occurs in many colours: colourless, white, pale yellow, reddish, brown, blue, and black. It is the hardest substance found in nature. It is a rare mineral that is usually found in a special type of rock called kimberlite. Diamonds with the best colour (colourless), clarity (transparency) and carat (size) are used for jewellery, but diamonds also have many industrial uses. They are used as abrasive agents and for polishing and cutting (for example, in diamond drills and saw blades). Diamonds are mined in northern Canada, including Ontario, and have recently been found in Quebec.

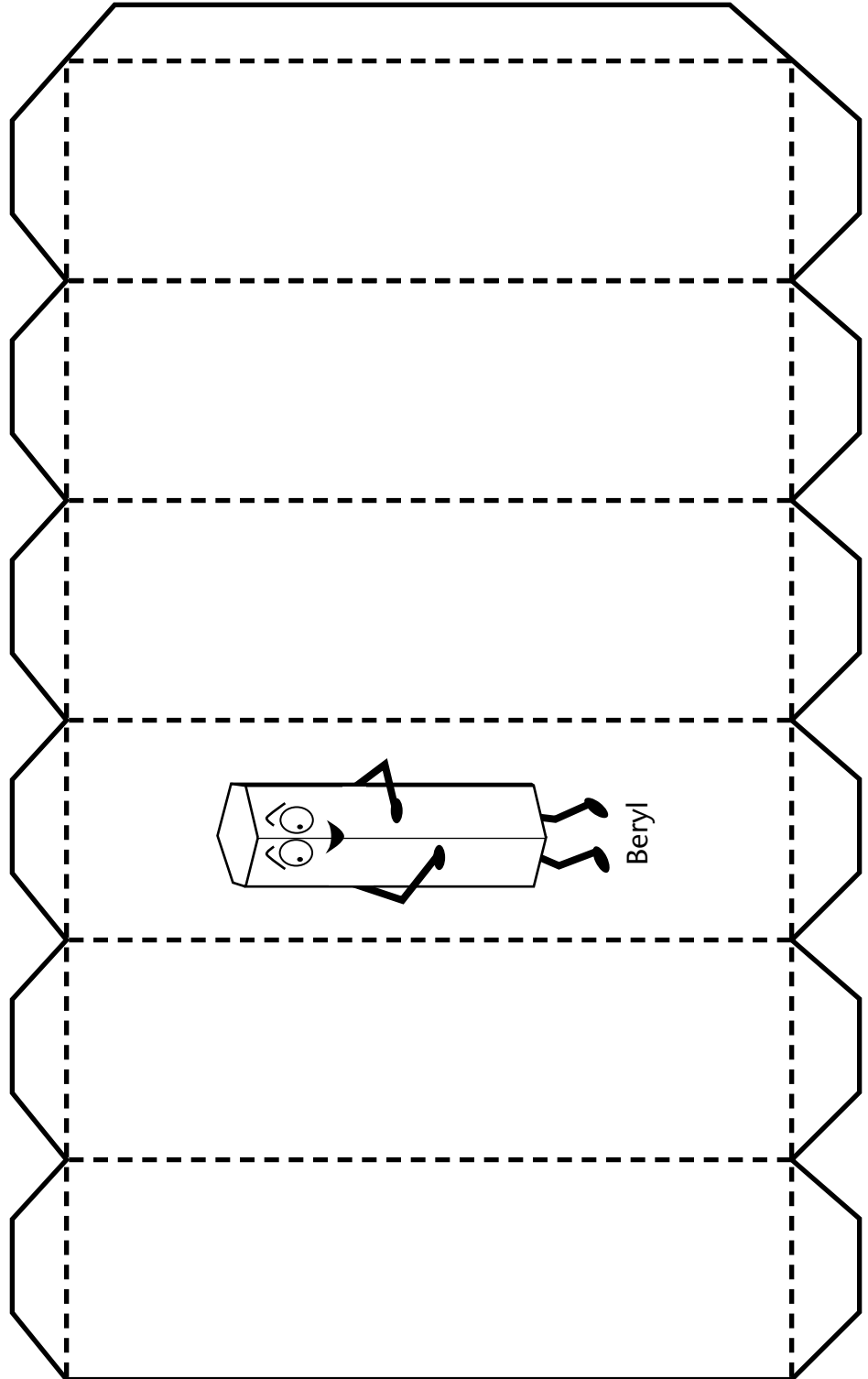
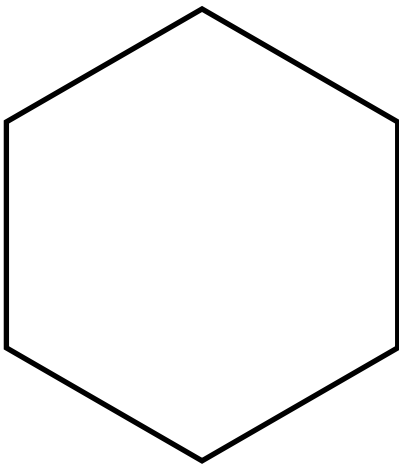
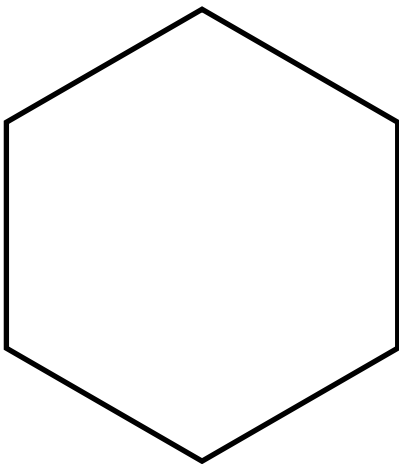
Beryl can be identified by its distinctive hexagonal (six-sided) prism shape. Golden beryl is a yellow variety of this mineral called heliodor. Bluish-green crystals of beryl are called aquamarines. Transparent (clear), bright-green beryl crystals are called emeralds. Emeralds are the birthstone for people born in the month of May. All these varieties of beryl are gemstones and are used to make jewellery. The mineral beryl is mined in many localities of Ontario and are commonly associated with pegmatites (a type of intrusive igneous rock) in Manitoba.

Hexagonal Prism

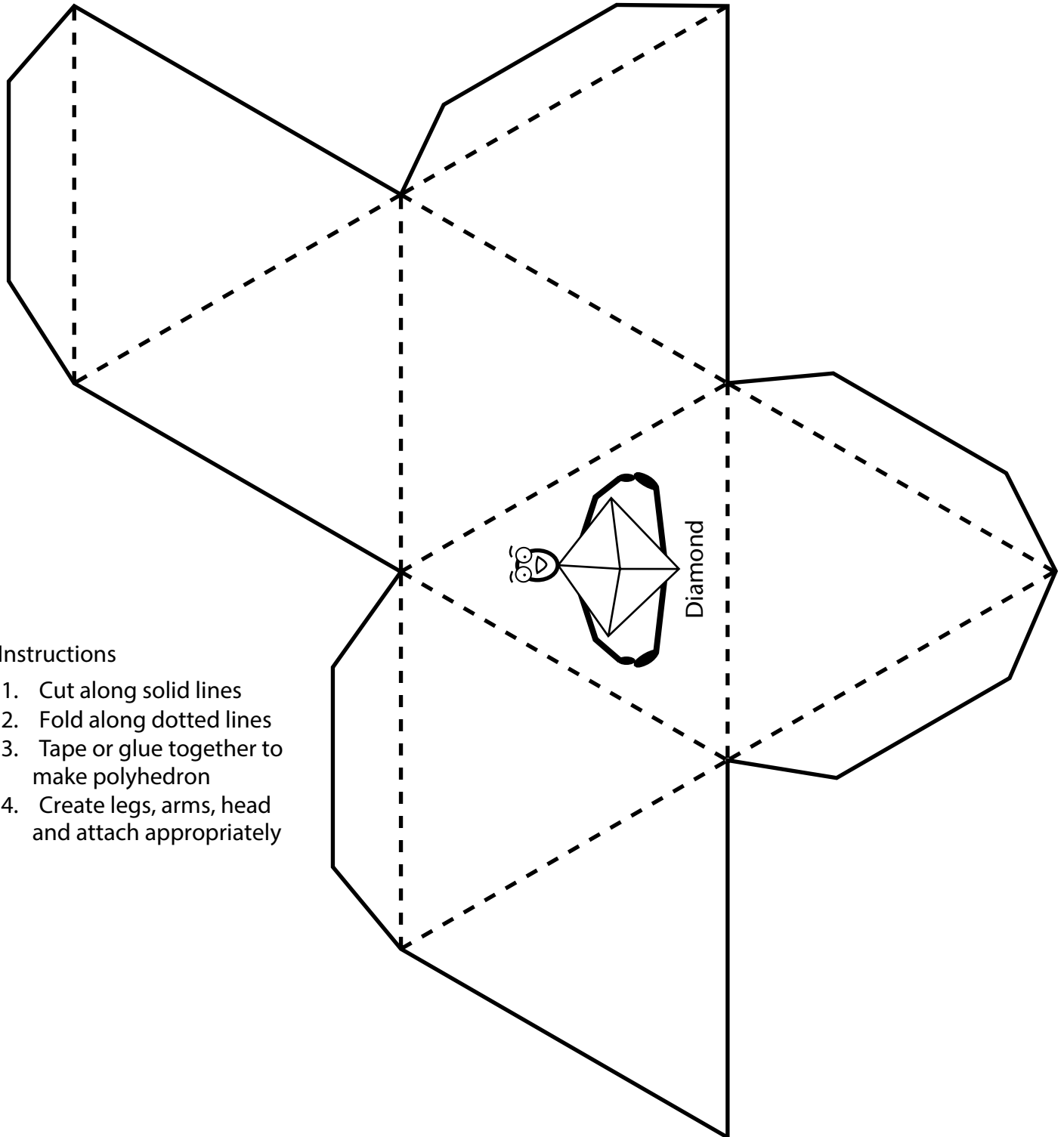
"Beryl"

Instructions

1. Cut along solid lines
2. Fold along dotted lines
3. Tape or glue together to make polyhedron
4. Create legs, arms, head and attach appropriately



Octahedron "Diamond"



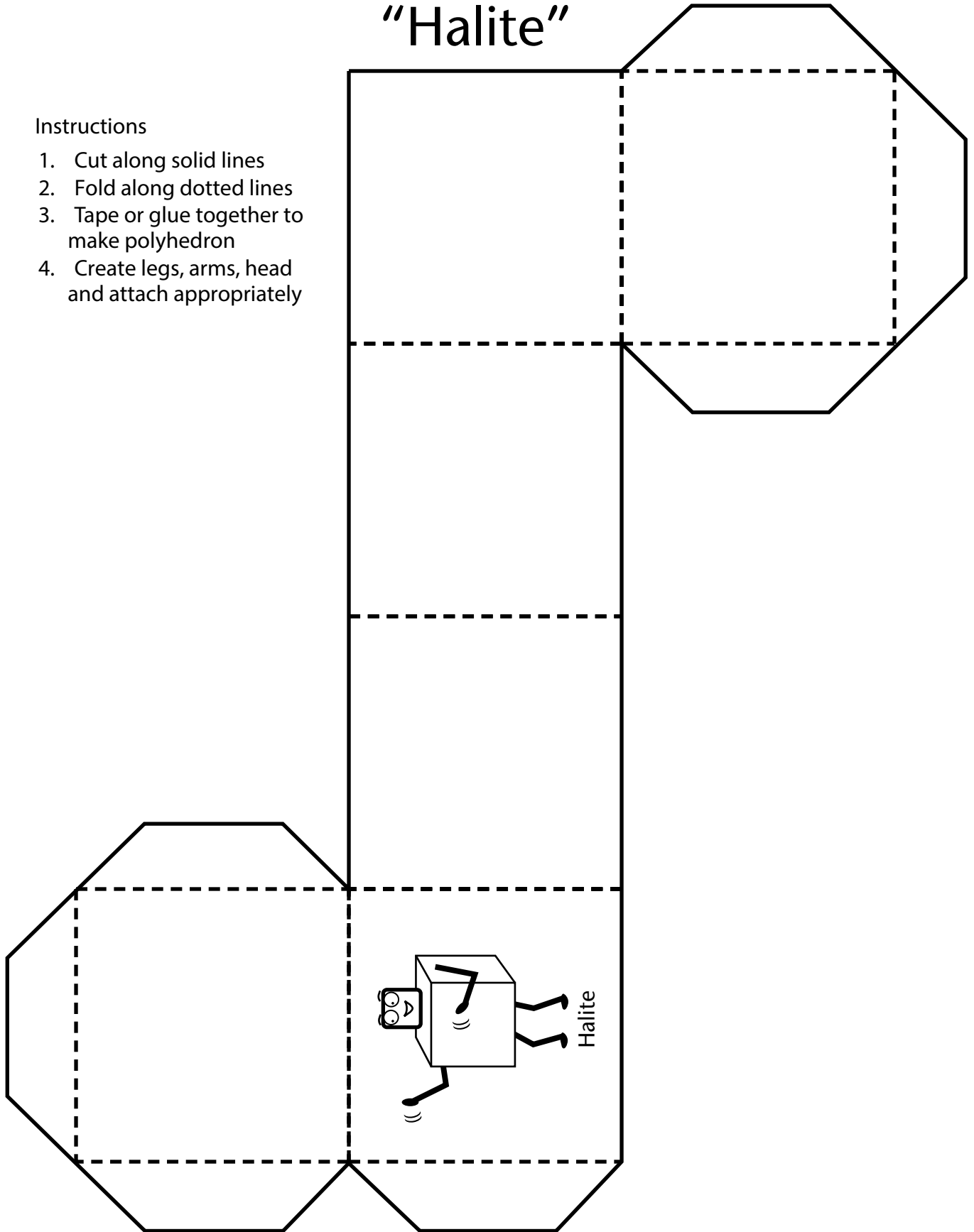
Instructions

1. Cut along solid lines
2. Fold along dotted lines
3. Tape or glue together to make polyhedron
4. Create legs, arms, head and attach appropriately

Cube "Halite"

Instructions

1. Cut along solid lines
2. Fold along dotted lines
3. Tape or glue together to make polyhedron
4. Create legs, arms, head and attach appropriately



Creating Mineral Mates

Look carefully at your three-dimensional shapes and answer the following questions.

a) What two-dimensional shape (polygon) makes up an octahedron?

b) How many faces are there on an octahedron?

c) What two-dimensional shape (polygon) makes up a cube?

d) How many faces are there on a cube?

e) What two-dimensional shapes (polygons) make up a hexagonal prism?

f) How many faces in all are there on a hexagonal prism?
