



## Creating Quartz Crystal Clusters

Many minerals occur as crystals or in crystal clusters. By completing Parts A and B of this activity, you will create a three-dimensional model of a crystal cluster for the mineral quartz. Quartz is the most common of all minerals, and has many forms, colors, varieties and possible uses. The **Hexagonal Prism & Hexagonal Pyramid** master net for photocopying is enclosed.

Before beginning this activity, you should examine the opposite photo of the student-made mineral crystals clusters. The **base rock** is the rock from which the crystal clusters protrude or extend. In your model, the base rock is made from construction paper and Part A takes you through the steps to construct this part of the model.

### Part A

1. To make your **base rock** you will need:

- One sheet of brown or grey construction paper (60 cm x 45 cm)
- Wallpaper paste mixed to a thick consistency
- White glue
- Small pieces of tissue paper, the same colour as the crystal shapes that will be made in Part B
- Brown and grey paint
- One large sheet of scrap paper on which to place the finished base rock to dry

2. By following the steps below, you will create a solid looking rock on which to glue your finished crystal shapes.

- Crumple the construction paper; do not worry about rips.
- Smooth out the crumpled construction paper and spread a thin layer of wallpaper paste on one side only.
- While the wallpaper paste is still wet, re-crumple the construction paper so that it resembles a rock shape.
- Fill rips in rock shape with crumpled pieces of tissue and glue in place.
- Again, while the wallpaper paste is still wet, use a small sponge dipped in brown and/or grey paint to cover the surface, to make it look more rock-like.

3. Set your base rock on a large sheet of scrap paper to allow it to dry while you complete Part B.

### **Part B**

Before beginning this part of the activity, you should re-examine the photograph of the student-made mineral crystal clusters, paying particular attention to the crystal shapes. This is a model of quartz mineral clusters.

1. For your crystal clusters you will need the following:

- One copy of the geometric net (enclosed), entitled Hexagonal Prism & Hexagonal Pyramid
- Colourful tissue paper
- Scissors, paintbrush, white glue and a small piece of cardboard
- Podgy (type of glue that dries to a shiny finish, found in most craft stores)

2. By following the steps below you will create mineral crystal shapes that you will cluster together and glue on the base rock completed in Part A.

- Cut out crystal shapes as accurately as possible
- Fold all tabs as sharply as possible before gluing in place to complete the three-dimensional form. Note that the crystal form for quartz consists of two nets (hexagonal prism and hexagonal pyramid). After assembly, these are joined together to complete the crystal form. Be careful to match lettered nets to produce complete crystal forms.
- Brush podgy on a crystal shape. While wet, place pieces of tissue onto crystal faces and apply a thin coat of podgy on top to flatten and secure edges of tissue (do not worry if tissue layers overlap). Glue finished crystals in a cluster on your base rock using white glue.
- Make a label identifying your mineral crystal cluster.

