

6 Identify the rocks which are suitable for wearing course roadstone.

Teacher's Section

Requirements (see notes)

A variety of rock samples, about 12 is suitable. They should include dolerite, basalt and greywacke sandstone.

Samples of the minerals found in the rocks.

Mineral hardness testing set.

Notes

This is a good exercise for revision of rocks and minerals. It is simpler, but not such good revision, if the mineral composition of each rock is given and also the hardness of each mineral as in the accompanying list.

Results

Dolerite, basalt and greywacke sandstone satisfy all the criteria.

Time

60 minutes

COMPOSITION OF ROCKS

Igneous rocks

<i>Andesite</i>	<i>felspar, hornblende biotite</i>	<i><0.1mm</i>
<i>Basalt</i>	<i>felspar, augite</i>	<i><0.1mm</i>
<i>Dolerite</i>	<i>felspar, augite</i>	<i>0.1mm - 2mm</i>
<i>Gabbro</i>	<i>felspar, augite</i>	<i>>2mm</i>
<i>Granite</i>	<i>felspar, quartz, mica</i>	<i>>2mm</i>
<i>obsidian</i>	<i>volcanic glass</i>	
<i>pumice</i>	<i>volcanic glass</i>	
<i>rhyolite</i>	<i>felspar, quartz, mica, volcanic glass</i>	<i><0.1mm</i>

Metamorphic rocks

<i>marble</i>	<i>calcite</i>	<i>0.1 - 2mm</i>
<i>gneiss</i>	<i>quartz, felspar, mica, hornblende</i>	<i>>2mm</i>
<i>metaquartzite</i>	<i>quartz</i>	<i>>2mm</i>
<i>slate</i>	<i>mica</i>	<i><0.1mm</i>

Sedimentary rocks

<i>flint</i>	<i>quartz - microcrystalline</i>	<i><0.01mm</i>
<i>greywacke</i>	<i>quartz, felspar, clay minerals</i>	<i><2mm</i>
<i>limestone</i>	<i>calcite</i>	<i>variable</i>
<i>sandstone</i>	<i>quartz</i>	<i>0.1 - 2mm</i>
<i>shale</i>	<i>clay minerals</i>	<i><0.1mm</i>

HARDNESS OF MINERALS

<i>Augite</i>	<i>6</i>
<i>calcite</i>	<i>3</i>
<i>Clay minerals</i>	<i>2.5</i>
<i>Felspar</i>	<i>6.5</i>
<i>Hornblende</i>	<i>6</i>
<i>Mica</i>	<i>2.5</i>
<i>Quartz</i>	<i>7</i>
<i>(volcanic glass</i>	<i>6)</i>