

ES 088 Minerals Exercises

NAME _____

Student# _____

In the southeast hallway of Biological and Geological Sciences Building there are a set of cases mounted on the west wall. The collection is referred to as the “Dana Collection” of minerals. Your assignment is to recognize physical properties that are seen in particular mineral specimens within these cases.

The Roman numerals that appear next to the mineral name indicate the cabinet in which you’ll find the specimen. The Arabic numerals refer to the actual mineral specimen number. **Be sure to employ the map that accompanies these pages.**

1) Name the kind of cleavage exhibited by the following mineral specimens:

- galena I (140) _____ (1) fluorite IV (1262) _____ (1)
calcite IV (1446) _____ (1) halite IV (186) _____ (1)
muscovite VIII (1996) _____ (1) biotite VIII (1917) _____ (1)

2) Name the lustre exhibited by the following mineral specimens:

- galena I (140) _____ (1) graphite I (1515) _____ (1)
sulphur I (319) _____ (1) chalcopryite I (1939) _____ (1)
pyrite II (1786) _____ (1) hematite II (1679) _____ (1)
hematite II (2174) _____ (1) fluorite IV (1262) _____ (1)
calcite IV (1446) _____ (1) quartz VIII (1790) _____ (1)
muscovite VIII (1996) _____ (1)
serpentine var. chrysotile VIII (576) _____ (1)
serpentine var. antigorite VIII (1581) _____ (1)

3) Determine the hardness of the following minerals relative to the hardness of standard tools (fingernail = 2.5, penny = 3, knife blade = 5, glass plate = 5.5, streak plate = 7). For most of the minerals below, your answer will not be an exact value, but will be expressed as a range.

An example: Corundum scratches a streak plate but cannot itself be scratched by any of these tools; the hardness of corundum is therefore greater than 7

Another example: Serpentine scratches a fingernail but can itself be scratched by a penny; the hardness of serpentine is therefore 2.5 or higher but less than 3.

graphite I (1515) can be scratched by a fingernail.

hardness range - _____ (1)

chalcopyrite I (1939) can scratch a penny but is scratched by a knife blade.

hardness range - _____ (1)

pyrite II (1786) can scratch a glass plate but is scratched by a streak plate.

hardness range - _____ (1)

calcite IV (1446) can scratch a penny but is also scratched by a penny.

hardness range - _____ (1)

fluorite IV (1262) can scratch a penny but is scratched by a knife blade.

hardness range - _____ (1)

gypsum V (862) can be scratched by a fingernail.

hardness range - _____ (1)

apatite V (1802) can scratch a knife blade but is also scratched by a knife blade.

hardness range - _____ (1)

olivine VI (1589) can scratch a glass plate but is scratched by a streak plate.

hardness range - _____ (1)

talc VIII (1451) can be scratched by a fingernail

hardness range - _____ (1)

biotite VIII (1917) can scratch a penny but is scratched by a knife blade.

hardness - _____ (1)

quartz VIII (1790) can scratch a streak plate but is also scratched by a streak plate.

hardness range - _____ (1)

albite (plagioclase) VIII (474) can scratch a glass plate but is scratched by a streak plate.

hardness range - _____ (1)

4) Compare microcline specimens 973 and 1375 in case IX. Is colour a good diagnostic property for this mineral?

_____ (1)

5) What is the streak for hematite II (1685)?

_____ (1)

6) What is “talc pleurodesis”? (This will require a bit of research. In this particular case, citations for information sources used will not be necessary)

_____ (5)

