Team_____

2002 NEW MEXICO REGIONAL SCIENCE OLYMPIAD
LOS ALAMOS
Rocks and Minerals

Station 1 – Physical Properties of Minerals

Identify the five minerals at this station and place them in their relative order, from softest to hardest, on Mohs hardness scale. A glass slide is provided.

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_____

_____

_____

_____

Station 2 – Economic Uses of Minerals

Identify the mineral or minerals in each of these specimens and name an economic use for each mineral. A streak plate and magnet are provided.

	Mineral Name	Economic Use
Specimen A (2 minerals)		
Reddish yellow	_____	_____
Cubic	_____	_____
Specimen B	_____	_____
Specimen C	_____	_____
Specimen D		
Black mineral	_____	_____
Specimen E (2 minerals)		
Blue	_____	_____
Green	_____	_____

Station 3 – Rock Classification

There are 6 rocks at this station. Identify each rock according to its general rock classification (igneous, metamorphic, and sedimentary) and then give each rock a rock name.

	General Classification	**Rock Name**
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____
F	_____	_____

Station 4 – Depositional Environments

Name these four sedimentary rocks and describe where they were deposited (e.g., beach, stream, alluvial fan).

	Rock Name	**Depositional Environment**
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____

Station 5 – Economic Uses of Rocks

Name the four rocks at this station and give an economic use (e.g., building stone, road construction).

Rock Name	**Economic Use**
A_____	_____
B_____	_____
C_____	_____
D_____	_____

Station 6 – Degree of metamorphism

Name these metamorphic rocks and place them in order of increasing metamorphism.

_____

_____

_____

What is the brown, elongated mineral in the specimen labeled A?

Station 7 – Depth of igneous rock emplacement

Name the six igneous rocks at this station and classify them as plutonic, volcanic, or hypabyssal.

	Rock Name	**Plutonic, Volcanic, or Hypabyssal?**
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____
F	_____	_____

Station 8 – Mineral Identification

1. Identify these two minerals. What properties did you use to make your decision?

A.

B.

2. Which of these two minerals have the higher specific gravity? What are these two minerals?

C.

D.

3. What is this mineral? What properties did you use to make your decision?
E.

Station 9 – Crystal Form versus Cleavage

Define crystal form.

Define cleavage

Examine these five minerals. Which minerals show crystal form and which show cleavage? What is the geometry of the crystal form or cleavage (e.g., cubic, hexagonal)?

	Crystal form or Cleavage?	**Geometry of crystal form or cleavage?**
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____

Station 10 – Tell me a story

Examine this pebble, which is from the banks of the Rio Grande. Name the two rock types preserved in this pebble. Explain the geologic history of this pebble.