Baumgartner, a 43-year-old Austrian, hit Mach 1.24, or 833.9 mph, according to preliminary data, and became the first person to reach supersonic speed without traveling in a jet or a spacecraft. The capsule he jumped from had reached an altitude of 128,100 feet (24 miles) above Earth, carried by a 55-story ultra-thin helium balloon.

Open to ESRT page 14, find 24 miles!!

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**Video of the Jump**

- Freefalling at Mach1 speed: [http://www.youtube.com/watch?v=OZtXW2opTlk](http://www.youtube.com/watch?v=OZtXW2opTlk)

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**WHAT IS A MINERAL?**

DO NOW ———

Which of the following are Minerals?

1. Gold
2. Diamond
3. Quartz
4. Oil
5. Dinosaur Bone
6. Cotton
7. Talc
8. Nylon
9. Brass

---

**A Mineral is:**

1. Naturally Occurring
2. Inorganic - Solid
3. Definite Chemical Composition
4. Definite Crystalline Structure
5. Internal Arrangement of Atoms

---

**What determines a Mineral’s Physical & Chemical Properties?**

Internal arrangement of atoms!!
Both are composed of Carbon Atoms.

Apatite    Feldspar    Diamond    Quartz

Oxygen    &    Silicon

SILICATES

The most common mineral Group?  
ESRT page 16

Silicates: Silicon, Oxygen Tetrahedron

Do Now: Hand in textbook HW

AIM: How do you identify different minerals?

** ESRT page 16 **

Color

Many minerals have the same color & the same minerals can have different colors. NOT RELIABLE for identification.
The color of a finely powdered mineral
Rub the mineral on a streak plate, reveals its ‘true’ powdered color.

**General appearance of a mineral:**
Metallic or Non-Metallic.

<table>
<thead>
<tr>
<th>Mohs Mineral</th>
<th>Hardness Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Talc</td>
<td>Softest</td>
</tr>
<tr>
<td>2) Gypsum</td>
<td></td>
</tr>
<tr>
<td>3) Calcite</td>
<td></td>
</tr>
<tr>
<td>4) Fluorite</td>
<td></td>
</tr>
<tr>
<td>5) Apatite</td>
<td></td>
</tr>
<tr>
<td>6) Feldspar</td>
<td></td>
</tr>
<tr>
<td>7) Quartz</td>
<td></td>
</tr>
<tr>
<td>8) Topaz</td>
<td></td>
</tr>
<tr>
<td>9) Corundum</td>
<td></td>
</tr>
<tr>
<td>10) Diamond</td>
<td>Hardest</td>
</tr>
</tbody>
</table>

**Luster**

- Metallic
- Non-Metallic

Mineral breaks and shatters.
Rough, Jagged, Uneven.

**Fracture**

- Musical or Non-Musical
- Glassy
- Obsidian
- Greasy
- Graphite
- Pearly-Talc
- Non-Metallic
- Metallic

---

3. List the 5 physical properties that are most useful for identifying minerals.

- Mechanical: 
  1. **Mohs hardness**
  2. **Luster**
  3. **Fracture**
  4. **Streak**
  5. **Specific gravity**

4. Why is color not a reliable means for identifying minerals?
Homework

Handouts & Lab
Quiz-Friday!!