

Rock-it Science Observations For Winter Lessons 2010

Sparks from Rocks and Steel (Older Groups)

Students were first given a supply of rocks, files, a hand driven grinder, a disk sander, and various metals to test.

They may have noticed:

- The rocks striking the file could produce sparks
- Sparks could be made more easily with faster hits
- The sparks had a yellow color
- Sparks could be made more easily when hitting the file at a shallow angle
- Flint, quartz, granite, and obsidian could all make sparks
- Dolomite made no sparks
- Rough files made better sparks than fine-toothed files
- Some rocks tended to break off sharp shards when they hit the steel
- It was difficult to tell if the sparks were from hot steel particles or rock particles
- The hand-driven grinder could make a lot more sparks than the rocks and files
- Large hardened steel pieces make better sparks than small soft steel pieces
- The sparks don't catch people on fire but they might sting a little
- The disk sander could also make sparks
- The thin steel wire made lots of sparks
- Brass and copper made no sparks
- Heavier steel pieces made a moderate amount of sparks

The students were given strikers with a cerium alloy 'rock' that rubbed against a hardened steel file.

They may have noticed:

- The sparks were white rather than yellow
- The sparks were bigger and closer to the file
- The sparks sometimes sputtered
- These sparks hurt more than the others if they landed on bare skin

The sparking element in this case is the source of the sparks, not the steel file.