

Impactites Activity Worksheet

In the following chart, make observations of the provided hand samples. Your observations should include things like colour (light/dark), texture (fine-grained/coarse-grained), whether it includes fragments of another rock, what those fragments look like, and any other interesting features you see. In a rock with a coarse-grained texture, you can see individual crystals or grains with your eyes. In a fine-grained rock you need a hand lens or a microscope to see individual grains and crystals.

Once you've made your observations, use the rock descriptions on the back of this page to predict what type of rock each sample is.

You'll have 5 minutes at each sample to make your observations, and then 5 extra minutes at the end to finalize your predictions for which rock is what.

Sample #	Observations:		Rock Type
	Colour:	Other:	
	Texture:		
	Colour:	Other:	
	Texture:		
	Colour:	Other:	
	Texture:		
	Colour:	Other:	
	Texture:		
	Colour:	Other:	
	Texture:		
	Colour:	Other:	
	Texture:		

Important Definitions:

Wall-rock – The rock that is next to an important geological feature. In the case of an impact, the wall-rock is that rock that was already present before the impact

Vesicle – A small hole in a rock, produced by a gas bubble

Matrix – A mass of fine-grained rock in which, crystals, fossils, or rock fragments are embedded

Veins – A fracture in a rock that is filled with mineral deposits

Clasts – Pieces of minerals and rocks mixed in with impact melt or a very fine grained matrix

Inclusions – Minerals infilling holes or larger minerals

Rock Descriptions:

Gneiss: Gneiss is a metamorphic rock. It tends to be dense (heavy), and often has layered bands of light and dark coloured minerals. Gneiss is a very common type of rock, and is not specifically associated with impacts.

Hydrothermal deposit: When water in the ground gets heated up by an impact, it can dissolve some of the minerals in the ground. When the water cools back down, the dissolved material crystalizes into new minerals which results in veins of crystal material.

Impact melt: Rock that was melted in the impact and then cooled back down to recrystallize into new rock is known as impact melt. The rock is usually fine grained and can include features like vesicles.

Impact melt breccia: Breccia is a type of rock where angular fragments of rock are contained in a fine-grained matrix. In an impact melt breccia, the matrix is made of rock that was melted in the impact and the fragments (clasts) were not.

Pseudotachylite: Pseudotachylite is a rock that is formed on the floor of a crater. Pseudotachylite is made when the friction of rocks grinding against each other after a large impact causes the rocks to melt and then recrystallize. Pseudotachylite is usually dark and can be either glassy or very fine-grained. There are often pieces of the wall-rock included within the fine-grained matrix.

Shatter Cone: Shatter cones are cone shaped features found near impact craters. High pressure shock waves produce small fractures, that form larger cone shapes. Shatter cones are important indicators of impacts because they are big enough to be seen with the naked eye.

Tektite: Impact glass formed when material excavated out of the crater and into the atmosphere rapidly cools to form spherical or splash formations. These are called tektites and are dark coloured, contain vesicles and inclusions, and sometimes look like dumbbells.