Module B. Colour from the Cosmos

Lesson 11 - Processed Diamonds

Diamond Shapes

Diamond cuts, or any gemstone cut for that matter, are varied. Certain cuts have been designed to maximize brilliance and fire, while others have been designed to intensify colours. The Round Brilliant is the classic shape seen in most diamonds today. This particular cut was designed based on the physics of light and the physical properties of diamond to return the most amount of light back up through the table of the stone.

Historically, diamond cuts had to be physically undertaken to see the end result. Today, computer modeling software lets us play with how a cut might represent itself on the table or side view of a stone. Multitudes of "designer cuts" have been created but a few notable ones have been well marketed. Examples include "Hearts and Arrows", "Amore", "Arctic Empress" and "Star Cut". The [Diaco Inc.](http://www.diacoinc.com/load_all_01.html) website includes 3D animations of the most common cuts and a few other specialty stones (click on 'Shapes' and choose from the drop down list).

Emerald cut diamond, 2.02 carats. Photo from the [Gemological Institute of America](http://www.gia.edu/).

Heart shaped diamond, 2.70 carats. Photo from the [Gemological Institute of America](http://www.gia.edu/).

Marquise cut diamond, 2.44 carats. Photo from the [Gemological Institute of America](http://www.gia.edu/).

Below are 3D renderings of "perfectly" cut stones. Modeling ray paths of light to emulate a natural setting is a particularly intensive task for computers as there are many many more light sources than we normally think about. Consequently, computer-aided modeling of diamonds has its limitations but can still give us a good idea of what a stone might look like when cut to specific proportions. You may have even noticed the lack of fire, or dispersion in those models seen in [Diaco Inc.'s](http://www.diacoinc.com/load_all_01.html) animations. Below are examples of computer generated models of various diamond shapes.

Round Brilliant cut diamond viewed from from different angles, left to right: top, oblique, side, and bottom.

Step cut diamond viewed from different angles, left to right: top, oblique, and side.

Princess Cut diamond viewed from different angles, left to right: top, oblique, and side.