

Activity

Measuring Impact Craters on Earth

Bang!

During this activity you will be using the impact calculator to try and reproduce some of the real impact craters we see on Earth.

What will I need for this activity?

- Access to the Impact Calculator:
http://education.down2earth.eu/impact_calculator

Method

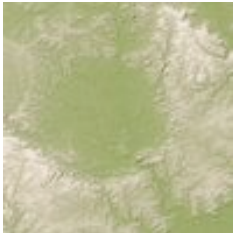
Input the following data into the impact calculator to make craters similar to those on Earth. Set your distance from impact as 500km so that you are not destroyed by the larger impact events and record your results in the table.

Barringer Meteor Crater, USA



Projectile Diameter: 100 m
Projectile Density: Iron (8000 kg/m³)
Impact Velocity: 20 km/s
Impact Angle: 45°
Target Density: Sedimentary rock

Ries Crater, Germany



Projectile Diameter: 1500 m
Projectile Density: Dense rock (2700 kg/m³)
Impact Velocity: 20 km/s
Impact Angle: 30°
Target Density: Sedimentary rock

Chesapeake Bay, USA



Projectile Diameter: 3500 m
Projectile Density: Dense rock (2700 kg/m³)
Impact Velocity: 20 km/s
Impact Angle: 45°
Target Density: Sedimentary rock

Crater Name	Impact Energy	Crater Depth	Crater Diameter	Other effects	Frequency of impact
Barringer					
Ries					
Chesapeake Bay					

Snap!

Below are 3 impact craters found on Earth. Using the impact calculator, can you fill in the gaps for the details of the impactor to match these craters?

Hint: There may be more than one way of forming each crater!

Crater Name	Projectile Diameter	Angle of impact	Object Velocity	Projectile Density	Target Density	Crater Diameter
Tenoumer crater - Africa		45°	20km/s		Sed. rock	1.8 km
Clearwater Lakes - Canada		45°	20km/s			30km
Chicxulub - Mexico						180km

The impact calculator which you used for the above activity is based upon equations and research carried out by scientists at Purdue University in the US.

But there are also scientists here in Wales who are interested in finding and identifying impact craters on Earth. On the next page, one of these scientists, Dr Iain MacDonald from Cardiff University, chats to us about his work and how he developed an interest in impact craters and finding bits of rock from space.