



## *ROCK CYCLE with a candle*

### *Instructions*

*1- First of all, you have to look at your teacher while making a model of processes involved in the rock cycle. She is going to use a candle and other trivial material.*

- List in your notebook all the material needed to perform the simulation.*

*2- After that, read all the definitions and terms related to the rock cycle.*

- You can redo the model by your self, in order to better understand the meaning of each term.*

*3- Discuss in groups: describe the processes in turn using the specific terms suggested. Next, fill the gaps in the final diagram.*

- *If you need extra information about the meaning of a term, you can ask your teacher for it or, as alternative, you can google the Internet.*

*4- Finally, solve these problems:*

- Which of the processes you have examined cannot be well represented in the wax model?*
- Some processes are too simplified if modelled in wax. Try to argue which of them are so. Explain why.*
- (homework) Try to design further experiments that are able to model one or more of missed processes using different materials of your choice.*

## *The rock cycle – phases*

*weathering* is the break up or break down of rocks in place (*in situ*) in which no solid material is moved away, by chemical, physical or biological activity

*erosion* is the removal of material by the action of gravity, water, wind or ice

*transportation* is the movement of fragments by gravity, water, wind or ice until they are deposited

*deposition* is the laying down of material

*compaction* is the compression of sediments by the weight of the deposited material above; compression alone can cause muds to become mudstones

*cementation* is the growth of small crystals of natural cement in the pore spaces of the sediment grains, cementing them together; cementation can cause sands to become sandstones, calcium carbonate fragments to become limestones

*metamorphism* is the change of sedimentary rocks (or igneous rocks) into metamorphic rocks by heat and increased pressure during mountain building episodes – it usually involves lateral compression, the 'rock' becomes less porous and 'harder'

*melting* of a rock to magma (through either partial or total melting) happens when rocks become hot enough

*rising* of hot magma occurs because it is less dense than the surrounding rock

*crystallisation* occurs when a magma cools and solidifies

*extrusion* occurs when magma reaches the surface, either as lava flows or explosively as bombs and ash;

*uplift* is the pushing upward of great masses of rock, usually during mountain-building episodes; as the overlying rock is eroded away, deeper and deeper layers are exposed.

Fill the gaps using the terms of the list (one or more terms in each blank)

