

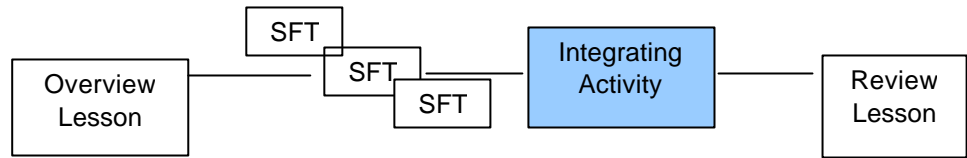
Learning objective: I can.....

Lesson 5 of 6

PoS 2c

Use a simulation to help me understand difficult ideas

QCA Unit: 3D



Resources

Software you could use:

Solar System Simulation (free) - <http://universe.chimons.org/contents/solar-en.html>

Support files:

Sssim.zip, solar system.ppt, controls.pdf, simpler controls.pdf

Setting the scene (5 mins)

Simulations can help us understand some ideas that are difficult to grasp without us being able to play with them in some way. They also can save time and effort (and money) by recreating a situation on the computer (virtually) instead of having to do it in real life. This example assumes you are teaching the solar system this year but any simulation that would support a relevant topic would do. Show the children a poster of the solar system (or even use the static presentation provided). Try to describe the movement of the planets and how those further away orbit slower than those closer to the sun while also revolving at various speeds. With a static picture this is quite hard to describe or visualise. In the olden days they used to have mechanical models. Nowadays we can use a simulation on a computer to see what happens.

Main Input (15 Mins)

Turn on the monitor and show the class the solar system simulation. (press “1” for a useful demo) Have a child come up and learn to operate the basics of the simulation and go through the options. Notice how this is not just a video clip but an interactive simulation. You can focus on any planet and indeed view the solar system from the surface of any planet. You can speed up time and watch the planets revolve. Is this something you could do any other way?

Activity – Integrated task (15-20 mins)

Children can work in pair experimenting with the simulation notably to help them see how the planets orbit the sun at different rates.

Review and recall (5 mins)

Ask the class if they feel they understand better how the planets revolve around the sun. Do they agree the simulation helped them with this?

Key questions to ask and to display:

How can simulations help us understand things better?

What did this simulation do that you couldn't do easily in real life?

Can you think of an example when it would be better not to use a simulation but the real thing?

Vocabulary:

Simulation, rules, real life, virtual

Teaching Points:

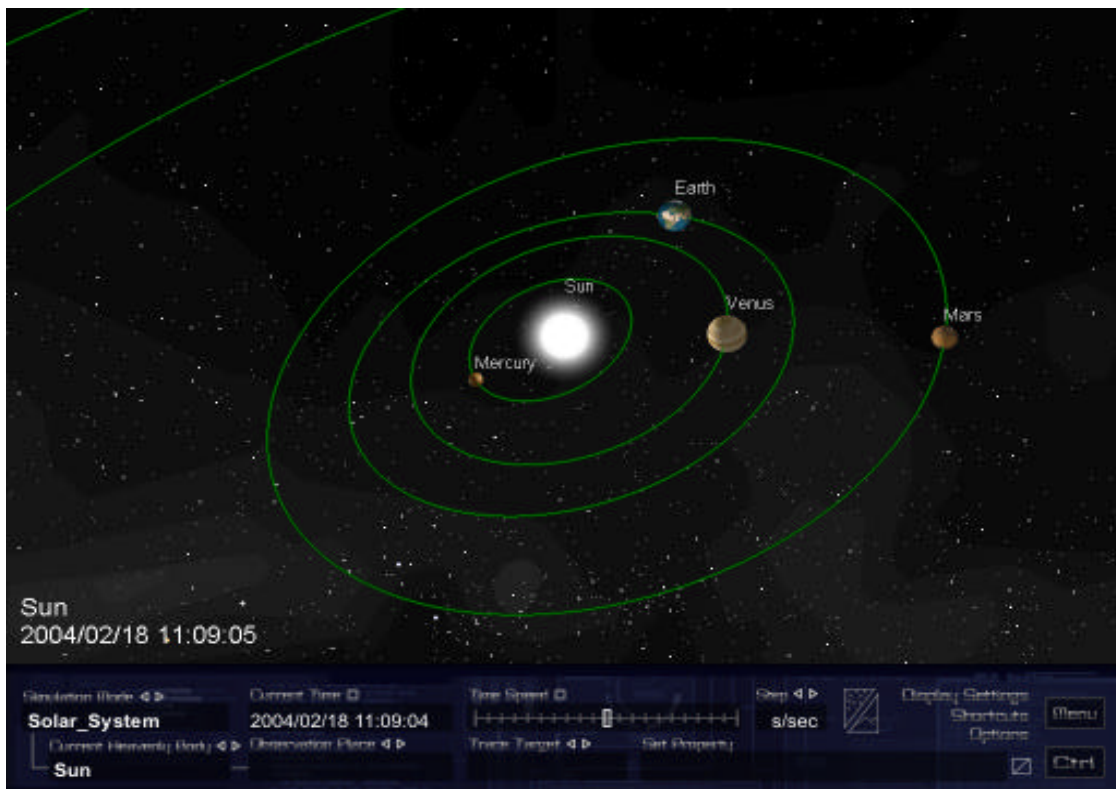
Use the controls.pdf to learn how to use the simulation yourself before this lesson. Only teach the children the basics of zooming in and out, rotating and speeding up time as there is much here that they need not interact with. A useful tip is also that “z” and “x” start and stop time. A file called simpler controls.pdf is provided for a display by the computer to aid their independence.

Assessment Opportunities:

When you assess their understanding of the science unit, has their understanding of the solar system been enhanced by using the simulation?
Did they manage to manipulate the simulation to view the solar system movement?

What comes next:

Inventing a possible simulation.



<http://universe.chimons.org/contents/solar-en.html>