Into Our Skies
Space in Schools

Credit: NASA

Spheres

Interactive Educational Video Teacher Notes

University of Central Lancashire
UCLan

UKRI Science and Technology Facilities Council

Key Information

Welcome to Into Our Skies: Space in Schools. This video is about spheres where pupils will explore the 3-dimensional shape of our Sun, Earth and Moon. We hope you and your pupils have a fantastic time with this video!

Total Video Duration: 00:34:22 mins

Link to Video and Soundtrack:

https://bit.ly/3j1V0HI

National Curriculum

The national curriculum learning outcomes covered in this video are:

KS2 Science: Earth & Space.

- Describe the Sun, Earth and Moon as approximately spherical bodies.

KS2 Dance/PE

- Explore movements using different levels (High, Medium, and Low), directions (forwards, backwards and sideways) and dynamics (continuous and rhythmic).
- Select, create, and perform short phrases of movement as an individual and as part of a duet.

REMEMBER: You can pause and rewind the video at any point.

REMEMBER: We should NEVER look directly at the Sun; it can severely damage out eyes.

Getting Ready to Dance

We want you to have a great time and immerse yourself in dance and science. Here's a few things to check before the lesson.

1. **Check the channel**: The interactive educational videos are made available through a link to You Tube. Please check you can access these and check the sound is loud enough for all students to hear Lucy's instructions.

2. **Set up the space:**

- To follow Lucy, make sure that the pupils are spread out and that they can clearly see the white board/screen the videos are projected on to.
- Make sure the space allows social distancing to be maintained if this is a policy in your school.
- Make sure the space is large enough for all pupils to move, does any furniture need moving?

3. **Health and Safety:** Please make sure that you have carried out a risk assessment for the lesson. We have provided a template risk assessment to help. Please ensure you follow any Covid/social distancing guidelines in place at your school.

4. **Read the Teacher Notes:** These give you additional guidance on how to support the pupils' experience, learning and engagement from both a dance and science perspective.

5. **Join In:** The teacher's role as facilitator and observer is key throughout but that doesn't mean you can't get involved and dance too!

Teaching Notes

These notes provide additional guidance covering:

- The science presented for each section.
- Suggestions for helping pupils with their dancing.
- Activities broken down with the video timings.

Resources: For this video you do not need any resources.

Warm Up	
Time	Description
1:55 	**Dance:** **Notice** How Lucy stands to start… feet in a parallel position, toes and heels in-line, small gap between the feet, hands down by her sides and head floating up towards the ceiling.
	Not warm yet? Rewind and play again!

Exercise 1: Arm Circle Articulation	
Time	Description
	Science: We see circles throughout space, like the disk of the Moon or Sun. Can students think of other circles they see in space? (Earth from Moon, Stars, Rings of Saturn, shape of a galaxy).
4:20 	**Dance:** **Notice**: Combining the circles adds challenge? Are the children using all the ways introduced by Lucy? Remind them to use the space in-front, side and behind the body? Are the children fully stretching? Fingers? Arms? **Top Tip!** Suggest the children slow down their movements a little if precision of movement is getting lost. **Differentiation:** Need a simpler version? Focus on just the small finger and large whole arm circles. **Top Tip!** There is some challenging co-ordination here – stop the video and give pupils a moment to practise if needs be.

Exercise 2: Funky Four Point Footwork	
Time	Description
	Science: Cardinal Points: We navigate the Earth and the Night sky by the points on a compass, North, South, East and West, the cardinal points. Students can think of a compass as they touch the 4 sides of their circle.
8:50 ! 	**Dance:** This funky footwork pattern has a hip-hop dance quality, encouraging co-ordination and rhythm. **Watch out!** Technique of the lunge is key here. Knees and toes facing forwards, knee bending, pressing the floor away to move out of the lunge and back to parallel position. **Differentiation:** Need more time to practise the lunge? Stop the video and practise with a partner. **Encourage:** pupils to notice the rhythm of the music and let it support their movements. **Notice:** How well do the children manage the co-ordination of the forward, side, back and tap sequence? **Differentiation:** Need a simpler version: Forward, side, back and clap! **Top Tip!** There is some challenging co-ordination here - stop the video and give pupils a moment to practise if needed.

Exercise 3: Painting a Sphere Exploring 3D space and levels	
Time	Description
	Science: This part of the lesson can be extended using the classroom investigation “Is the Earth flat?” You can also recap KS1 material on seasons here if you wish.
15:10 ! 👁	**Dance:** Pupils are asked to imagine painting the inside of a sphere. Support the children’s ideas, experimentation and choice making. **Remember** positive, specific praise can really help. Name what you see the children doing. E.g., Beth, I see you reaching behind your body, painting from high to low. Amir, I see you tracing the line of the equator with your fingertips. **Notice**: Are they exploring different levels? Low, Medium, and High. Painting the whole surface of the sphere? Infront, to the side, behind and all the surfaces in between (diagonals)? **Top Tip!** Asking questions - Are you managing to paint every part of your sphere? Are there any areas that you keep missing? Are you fully extending from your centre point? **Differentiation:** Want additional challenge? In pairs, ask them to observe and describe each other’s movements to improve their dancing. Evaluation is also possible: Ask the children to think about how they might improve their dancing?

Exercise 4: Shifting the dynamic	
Time	Description
19:20	**Dance:** Long, continuous, smooth sweeping actions and short, sharp, rhythmic handprints in space are explored in this section. Pupils need to re-find their hip-hop groove! **Listen** how the music supports the dynamics. **Differentiation:** If the musicality proves tricky - ask the children to perform just the handprints with the music to start with. **Encourage:** children to think about different levels and directions when making their handprints.

Exercise 5: Selecting and setting movements	
Time	Description
21:05 	**Dance:** This exercise asks the children to select their favourite long sweeping movement and 4 handprint moves. **Top Tip!** Ask the children to work with a partner to help them choose their favourite sweeping movement and 4 handprints. Rewind to practise. There is 45 seconds of music at 20:15, fast-forward to 21:45 to continue. **Differentiation:** Describing movements can support clarity for children that need additional support. e.g., I see you doing a long sweep, side to side for 8 counts and I can see that you have created 2 handprints, one to the front/high and the other to the front/low. Great - why don't you repeat those handprints to make up your pattern of 4? Some children will be able to select and recall more than 1 sweeping/4 handprints sequence. Great! Encourage a variety of directions and levels. Watch Lucy for inspiration.

Composition: Spherical Duets	
Time	Description
21:45	**Dance:** Lucy offers a simple structure that allows the children to use their chosen dance moves compositionally. **How will the children arrange themselves in the space?** With a partner, A = Moon Group; B = Earth Group. Partners could be next to one another or spaced across the room from one another? **It's a bit like musical statues!** When Lucy calls out your group you move, when Lucy calls the other group, you freeze. Listen carefully! ! **Watch out!** as the duet progresses the timings change – how do the children respond to this? **Pupil Voice:** Gather ideas about what worked well in their dance and what could be improved next time.  Rewind to 23:12 mins to repeat the spherical duets.

Cool Down: A 6-minute winddown	
Time	Description
	Science: The relative sizes of Sun, Moon and Earth. Lucy makes herself small like the Moon. The diameter of the Moon is about ¼ the diameter of Earth. If the Earth was hollow, you could fit about 50 moons inside! But the Moon isn't the smallest spherical body in our Solar System, the smallest sphere in our Solar System is the dwarf planet Ceres which is about three times smaller than our Moon. Lucy does circles of the largest sphere in our Solar System, the Sun. The Sun is 109 times larger in diameter than the Earth and if it was hollow could fit about 1 million Earths inside!
27:15 	**Dance:** This section is to wind down and stretch out the muscles. **Encourage** the children to listen to instructions when bending over rather than watching the screen so their necks can relax. **Notice:** Lunge/calf stretch – are the children remembering and applying the technique of a lunge they learnt earlier in the class? **Encourage:** The group end, as they started = toes/heels aligned, space between feet, arms by side, floating head.
33:10	**Well Done Everyone!**