UNIVERSE IN THE CLASSROOM: ROBOTIC TELESCOPES IN PRIMARY SCHOOLS

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Wales

- Population: 3 million
- Primary Education: ages 5-11 yr
- Maths, Reading and Science
  PISA ranking fallen since 2009
- Lowest of all UK countries across all three domains
- Only UK country lower than OECD average
Universe in the Classroom
Universe in the Classroom Goals

- Use astronomy to spark a curiosity and a passion for learning,
- Raise primary school teacher participation in STEM activities,
- Enrich, modernise and improve teaching tools and methods,
- Provide challenging learning opportunities,
- Promote a diverse range of scientists (gender, race, language etc.)
- Raise social mobility, engagement and STEM skills in unengaged schools,
- Change students perceptions of STEM,
- Improve the quality of teaching in underserved schools and areas,
Universe in the Classroom Goals

- Underserved
- Perceptions
- Role models
- Curiosity
- Diverse
- Teacher engagement
- Modernise tools
Number of schools engaged: 215
Number of teachers trained: 339
Number of school workshops: 101
Number of STARS trained: 62
Number of schoolchildren reached directly: 22,083
Hi, I’m Serol! Do you want to make a model telescope like mine? Let me show you how. All you need is a pair of scissors and some glue, then just follow the steps below. It’s easy! So, have fun and enjoy your new telescope!

Congratulations! If you’ve come this far you’ve successfully completed each step. You are now the proud owner of your own model telescope!

To take the next step toward the stars, go to lcogt.net/observe and you can use a real telescope to explore the night sky!

Hands-on Materials
Las Cumbres Observatory

Eighteen telescopes at eight sites around the world working as a single instrument

a global telescope network
CHALLENGES

★ Risks of live observing session

Telescope Time Used: Queue vs Slot

- 6% Live observing
- 94% Queue-based observing

SEROL
M93

Type:
Open cluster

Telescope:
Faulkes Telescope South

Image by:
Northfleet School for Girls

Original

Take your own picture!
**CHALLENGES**

- Risks of *live* observing session

- Little knowledge of cosmic objects, no coverage in National Curriculum
11. Discover Time Zones

**Description:**
Different parts of the planet experience different times, when it's lunchtime in Wales, children in Australia are already fast asleep! Time zones are an important, but confusing concept. This activity uses hands-on demonstrations to explain the motion of the Earth and the need for different time zones in a clear and understandable way.

**Materials:**
- Earth Ball
- x7 Small stickers
- Lamp
- Printed Time Zones Worksheet per student *(Appendix 12)*

**Learning Objectives:**
- Students will understand the concept of time zones and become familiar with the following key terms: Prime Meridian, Longitude, Time Zone.
- Students will learn how to calculate the time at different longitudes in relation to the Prime Meridian.
- Students will appreciate the need for telescopes at different longitudes.

**Background Information:**
Townes and cities around the world used to set their clocks by the Sun, but dawn and dusk occur at different times in different places because of the Earth's rotation. The long travel times and lack of long-distance communications back then meant that the time differences were barely noticeable. The need for standard time zones didn't emerge until the 1800s, with the spread of high speed transportation systems.

**Subjects:**
- Science
- Numeracy
- Literacy
- Art
- Geography
- History
- ICT

**Type of Activity:**
- Demo
- Worksheet
- Hands-on
- Game

**Duration:**
- 15min - 1 hour

[www.universe.wales]
**Challenges**

- Risks of live observing session
- Little knowledge of cosmic objects, no coverage in *National Curriculum*
- Many teachers *intimidated* and lacking knowledge and confidence
Teacher Training

★ 95% teachers more confident after training
★ 25% teachers have used LCO account “several times”
★ 45% teachers shared resources with other staff at school
★ 75% teachers said their school could use a second LCO account
EVALUATION

Name: Leon class 7

What do you know about the sky and space? Have you got any questions? Write or draw

Date ................................ Location ...............................................
Activity being evaluated ..........................................................
Child age .......... M/F Languages: ...........................................
School .................................................................

Instructions:
Children add ideas as writing or drawing, pre activity.
Using a pencil. After their activity return and add new ideas using a PEN or blue coloured pencil.
Workshop Results

Students' scientific vocabulary pre and post STARS workshop

- Simple (Pre: 1800, Post: 800)
- Complex (Pre: 400, Post: 1800)
THANKS FOR LISTENING!

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LCO Education Partners
Useful Links

Observing Portal
- observe.lco.global

User Guides
- lco.global/education/observing/
- lco.global/onsky/cheatsheet/
- universe.wales/robotic-telescopes-for-wales

Classroom Resources
- messierbingo.lco.global
- universe.wales/resources

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