

## Lesson Plan: Telescopes Through the Ages

**Duration: 35-40 mins**

Learning objectives:

1. Show the visual difference in telescope images over time
2. Knowing the elements of telescopes that were improved over time
3. Understand the physical limitations of telescopes
4. Get a grasp on the types of telescopes and what form of EM form they collect
5. Basic understanding of the types EM radiation
6. Learn about Ireland's addition to astronomy

Links to Junior Cycle Science Curriculum:

- NOS 1 Understanding
- E&S 2 Building Blocks
- PW 4 Systems & Interactions

Activity	Procedure	Materials	Time
Types of Telescopes	<ul style="list-style-type: none"> <li>● Introduction to the electromagnetic spectrum</li> <li>● Optical vs radio telescopes</li> </ul>		5
Effect on Images	<ul style="list-style-type: none"> <li>● In small groups/pairs arrange the images in chronological order</li> <li>● Encourage students to consider how they are analysing the data presented with information they know</li> </ul>	Images throughout history (pdf) Answers in powerpoint	10
Telescope improvements	<ul style="list-style-type: none"> <li>● Can we keep just building larger telescopes?</li> <li>● Collapse / warp due to size</li> <li>● Use of static telescope but they are less functional as they cannot be pointed in a specific direction</li> <li>● Different elements that can be improved upon</li> </ul>	Optional video: <a href="#">Kepler to Webb: History of Telescopes</a> (4 mins)	5-10
Telescopes in Ireland	<ul style="list-style-type: none"> <li>● I-LOFAR in Birr uses radio waves and an array of antenna ( more info in Radio Astronomy in Birr lesson)</li> <li>● Ireland is also involved in ESO, EST, JWST</li> </ul>	<a href="#">I-LOFAR – Exploring the radio universe from Ireland</a>  <a href="#">ESO live images</a>	5
Future telescopes	<ul style="list-style-type: none"> <li>● Allow students to discuss/ design what future telescopes may look like/ find</li> </ul>		5

