

Activity 1: Scientific Revolution

Microscopes and telescopes are powerful tools and easily recognisable symbols of science and technology. Both inventions were important in moving the Scientific Revolution forward.

In this activity, we'll investigate the development of astronomy during the Renaissance and the beginnings of the Scientific Revolution. Have a look at the images below which shows how the development of technology helped to progress our understanding of science.

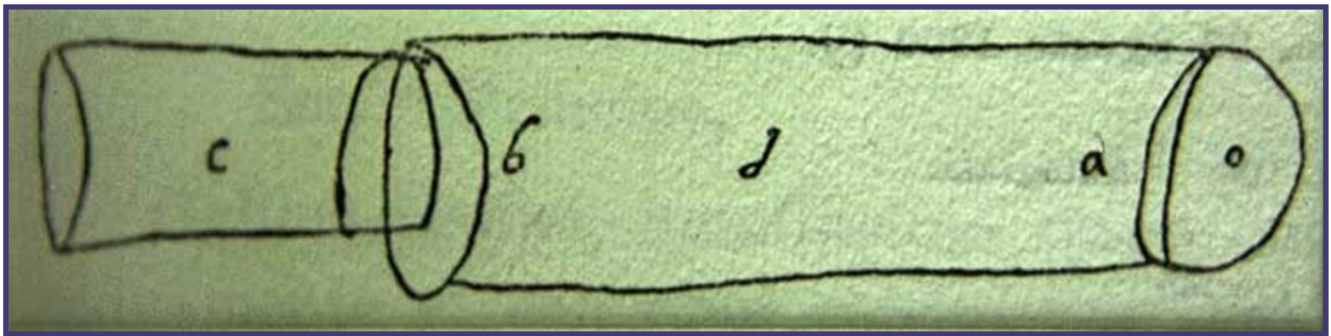


Figure 1. Earliest illustration one of the first telescopes (credit: <https://history.aip.org/exhibits/cosmology/tools/tools-first-telescopes.htm>)



Figure 2: The Gutenberg Printing Press (credit: <https://publishhistory.wordpress.com/2013/08/05/johannes-gutenberg-and-the-printing-press/>)



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Task 1

a) Do some research to complete the timeline below by matching the 'people and events' in Column 2 and 'descriptions' in Column 3 to the years in Column 1.

Note: some people/events may have multiple descriptions attached to them while others may have only one.

Here are some links to get you started:

The scientific revolution:

<http://users.clas.ufl.edu/ufhatch/pages/03-Sci-Rev/SCI-REV-Teaching/03sr-definition-concept.htm>

Microscope and telescope invention:

<http://www.annclinlabsci.org/content/32/3/309.full>

<https://www.bristol.ac.uk/news/2002/1112178263.html>

<https://history.aip.org/exhibits/cosmology/tools/tools-first-telescopes.htm>

<http://galileo.rice.edu/sci/instruments/telescope.html>

The Printing Press:

<http://www.historyguide.org/intellect/press.html>

<http://www.library.manchester.ac.uk/firstimpressions/From-Manuscript-to-Print/The-Explosion-of-Print/From-the-printing-revolution-to-the-Reformation/>

The Black Death:

http://www.bbc.co.uk/bitesize/ks3/history/middle_ages/the_black_death/revision/3/

The Renaissance Generally:

<http://history-world.org/renaissance.htm>

The Protestant Reformation:

<https://www.nature.com/articles/550454a>



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The scientists:

<https://blogs.umass.edu/p139ell/2012/11/19/the-renaissance-and-the-scientific-revolution/>

Kepler:

<https://www.space.com/15787-johannes-kepler.html>

Copernicus:

<https://www.famousscientists.org/nicolaus-copernicus/>

<http://www.nmspacemuseum.org/halloffame/detail.php?id=123>

Galileo:

http://www.bbc.co.uk/history/historic_figures/galilei_galileo.shtml

<https://www.britannica.com/biography/Galileo-Galilei>

<http://www.sites.hps.cam.ac.uk/starry/galsidnun.html>

Brahe:

<http://www-groups.dcs.st-and.ac.uk/history/Biographies/Brahe.html>



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COLUMN 1	COLUMN 2	COLUMN 3
<u>Years</u>	<u>People and events</u>	<u>Descriptions</u>
1347	<ul style="list-style-type: none"> Christopher Columbus 	<ul style="list-style-type: none"> Developed a helio-centric model of the universe
1448	<ul style="list-style-type: none"> Columbus discovers North America 	<ul style="list-style-type: none"> Observed a supernova and a comet
1473 – 1543	<ul style="list-style-type: none"> The Black Death 	<ul style="list-style-type: none"> Contradicted the idea that the heavens never changed
1492	<ul style="list-style-type: none"> Johannes Kepler 	<ul style="list-style-type: none"> Made meticulous and very accurate measurements of the movements of the planets and stars
1517	<ul style="list-style-type: none"> The telescope is improved by Galileo 	<ul style="list-style-type: none"> Supported the Copernican theory of the helio-centric universe
1546 – 1601	<ul style="list-style-type: none"> Nicholas Copernicus 	<ul style="list-style-type: none"> Helped Galileo publicise his case for patronage and made him well-known throughout Europe
1564 – 1642	<ul style="list-style-type: none"> Joannes Gutenberg invents the printing press 	<ul style="list-style-type: none"> Was accused of heresy...twice!
1571 – 1630	<ul style="list-style-type: none"> The Protestant Reformation takes hold 	<ul style="list-style-type: none"> This allowed for the development of the idea of 'fact' – something that can be checked and tested
1590	<ul style="list-style-type: none"> The Starry Messenger is Published 	<ul style="list-style-type: none"> Defended the Copernican model and inherited Tycho's data
1608	<ul style="list-style-type: none"> The first telescope invented in the Netherlands 	<ul style="list-style-type: none"> Determined the 3 Laws of Planetary Motion - which were later used by Newton
1609	<ul style="list-style-type: none"> Galileo Galilei 	<ul style="list-style-type: none"> Many physicians blamed the stars and planets for this occurrence
1610	<ul style="list-style-type: none"> Tycho Brahe 	<ul style="list-style-type: none"> Although today it is widely used in health research, this instrument was not appreciated as a useful scientific tool until centuries later
	<ul style="list-style-type: none"> The microscope is invented 	<ul style="list-style-type: none"> The result of many different factors including a boom in world-wide trade, and a lack of sewers, rubbish collections, and sanitation in medieval towns
		<ul style="list-style-type: none"> Made the Renaissance not just an Italian phenomenon but a European phenomenon by making it easier, cheaper, and faster to pass on written knowledge
		<ul style="list-style-type: none"> Enabled by the invention of the printing press, this movement meant the Church no longer had a monopoly on truth
		<ul style="list-style-type: none"> Announced Galileo's discovery of 4 moons of Jupiter using his improved telescope
		<ul style="list-style-type: none"> Improved Galileo's salary from the University of Padua
		<ul style="list-style-type: none"> Thanks to the newly invented printing press, news of this discovery travelled much farther and faster than a similar voyage by Marco Polo, just centuries before
		<ul style="list-style-type: none"> Helped make "instruments" an important part of observing nature
		<ul style="list-style-type: none"> Developed by craftsmen, not scientists

