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| **Chapter 1****1.1** | Observing Living ThingsP. 11-21 BC Science 8 |
| **Vocabulary & Concepts** |
| unicellular | multicellular | compound microscope | magnification power |
| resolving power |  |  |  |

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| Examining Very Small Living Things |

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| **Brainstorm:** Why are we interested in seeing very small things? What do we need to see very small things? |

The \_microscope\_ is used by scientists to observe small unicellular and multicellular things.

* There are many different types:
	+ Magnifying glass
	+ Compound light microscope
	+ Transmission electron microscope (TEM)
	+ Scanning electron microscope (SEM)
* Early microscopes were built in the late 1600s and early 1700s
* \_Anton van Leeuwenhoek\_ was one of the first people to build a microscope
	+ Could magnify up to \_250X\_ and used it to observe microscopic living things



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| The Modern Compound Light Microscope |

Resolving nosepiece



Objective lenses

Stage

Light source

base

Fine focus knob

Coarse focus knob

arm

eyepiece

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| How the Compound Microscope Works |



The compound light microscope has 3 sets of lenses that magnify an image. The image you observe is magnified, inverted and reversed

Each objective lens has a different **magnification power:** \_the number of times larger an image appears under a particular lens

Total magnification power = low power objective lens x eyepiece lens

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| Power | Objective Lens Magnification | Eyepiece Lens Magnification | Total Magnification Power |
| Low | 4 | 10 | 40 |
| Medium | 10 | 10 | 100 |
| High | 40 | 10 | 400 |

Most people can see only dots separated by 0.1 mm or more in the diagram below. This means that most people can see the individual dots in diagrams A, B and C, but do not have the resolving power to see the dots in diagram D.



**Resolving power**: \_the ability to distinguish between two dots or objects that are very close together\_

* The microscope extends human vision by enabling us to view objects that are smaller and closer together.
* The compound light microscope has a resolving power of 0.2 microns (**μm)** A micron or micrometre is a millionth 10-6 of a metre.