

# The Universe

## Overview Sheet

### Essential Question

How is the universe structured?

### Vocabulary

universe	Big Bang Theory	galaxy	Milky Way
solar system	planet	constellation	star
telescope	Hubble Space Telescope	quasar	parallax
asteroid	comet	meteorite	meteor
dark matter	astronomical unit (AU)	parsec	light-year

### Objectives

1. Describe the universe and its major components
2. Explain the "Big Bang" Theory
3. Explain how it is known that the universe is continuously evolving/expanding
4. Identify the scientists that have contributed to our understanding of the universe
5. Describe a galaxy and the different types
6. Describe a solar system and its major components
7. Compare and contrast the smaller objects found in the universe
8. Compare and contrast the different types of telescopes
9. Compare and contrast the different units of measure used to describe the universe

### Helpful Websites

- <http://www.kidsastronomy.com/> (astronomy overview)
- <http://www.kidsastronomy.com/academy/index.htm> (astronomy overview + interactive)
- [http://coolcosmos.ipac.caltech.edu/cosmic\\_classroom/multiwavelength\\_astronomy/multiwavelength\\_astronomy/](http://coolcosmos.ipac.caltech.edu/cosmic_classroom/multiwavelength_astronomy/multiwavelength_astronomy/) (multi-wavelength astronomy overview)
- <http://www.seasky.org/cosmic/sky7a.html> (universe overview)
- <http://library.thinkquest.org/28327/html/home.html> (universe overview)
- <http://library.thinkquest.org/20632/index-e.html> (universe overview)
- <http://archive.ncsa.uiuc.edu/Cyberia/Cosmos/CosmosCompHome.html> (universe + overview + interactive)
- <http://library.thinkquest.org/28327/main/cockpit.swf> (universe + interactive/virtual)

More on back 

- <http://www.pbs.org/deepspace/timeline/index.html> (universe + timeline)
- <http://amazing-space.stsci.edu/> (universe overview)
- <http://www.windows.ucar.edu/> (universe overview)
- <http://school.discoveryeducation.com/schooladventures/universe/> (universe + overview)
- <http://www.pbs.org/wgbh/nova/universe/> (universe + overview)
- <http://www.atlasoftheuniverse.com/> (universe atlas)
- [http://jvsc.jst.go.jp/universe/et\\_e/index\\_e.htm](http://jvsc.jst.go.jp/universe/et_e/index_e.htm) (universe + ET)
- <http://www.pbs.org/wgbh/nova/worlds/> (Hunt for alien worlds)
- <http://www.seasky.org/skygallery/skygallery.html> (image gallery)
- <http://amazing-space.stsci.edu/resources/explorations/galaxies-galore/index.html> (galaxies overview + interactive)
- [http://www.skyandtelescope.com/howto/basics/How\\_to\\_Start\\_Right\\_in\\_Astronomy.html](http://www.skyandtelescope.com/howto/basics/How_to_Start_Right_in_Astronomy.html) (stargazing overview)
- <http://www.astro.wisc.edu/~dolan/constellations/> (constellations)
- <http://www.astro.uiuc.edu/~kaler/sow/const.html> (constellations)
- <http://www.fcps.edu/DIS/OHSICS/planet/constell/constell.htm> (constellations)
- <http://www.seasky.org/pictures/sky7b.html> (constellations)
- <http://www.astro.wisc.edu/~dolan/constellations/constellationjavalist.html> (sky chart + interactive)
- <http://www.pbs.org/seeinginthedark/explore-the-sky/your-sky-tonight.html> (star charts)
- <http://www.enchantedlearning.com/subjects/astronomy/tutor/solarsystem/1/> (solar system + tutorial + interactive)
- <http://www.astronomytoday.com/astronomy/solarsystem.html> (solar system overview)
- <http://www.seasky.org/solarsystem/sky3.html> (solar system overview + interactive)
- <http://space.jpl.nasa.gov/> (solar system + simulator)
- <http://www.solarviews.com/eng/homepage.htm> (solar system overview)
- [http://www.windows.ucar.edu/cgi-bin/tour.cgi?link=/our\\_solar\\_system/solar\\_system.html&sn=0&cd=false&cdp=/windows3.html&art=ok&frp=/windows3.html&fr=f&tour=&sw=false&edu=elem](http://www.windows.ucar.edu/cgi-bin/tour.cgi?link=/our_solar_system/solar_system.html&sn=0&cd=false&cdp=/windows3.html&art=ok&frp=/windows3.html&fr=f&tour=&sw=false&edu=elem) (solar system overview)
- <http://www.harcourtschool.com/activity/blast/index.html> (solar system + overview + interactive)
- <http://nssdc.gsfc.nasa.gov/planetary/planetfact.html> (planets)
- <http://pds.jpl.nasa.gov/planets/welcome/earth.htm> (planets)
- <http://www.nineplanets.org/> (planets overview + interactive)
- [http://imagine.gsfc.nasa.gov/docs/science/known\\_1/emspectrum.html](http://imagine.gsfc.nasa.gov/docs/science/known_1/emspectrum.html) (EM spectrum + overview)
- <http://amazing-space.stsci.edu/resources/explorations/light/ems-frames.html> (EM + interactive)
- <http://school.discoveryeducation.com/lessonplans/interact/electromagneticspectrum.html> (EM + tutorial)
- <http://www.lon-capa.org/~mmp/applist/Spectrum/s.htm> (EM spectrum + interactive)
- <http://www.pbs.org/seeinginthedark/explore-the-sky/internet-telescope.html> (internet telescope + interactive)
- <http://quest.arc.nasa.gov/hst/about/history.html> (Hubble Space Telescope + history)
- <http://www.pbs.org/deepspace/hubble/index.html> (Hubble Space Telescope + overview)
- [http://hubblesite.org/the\\_telescope/hubble\\_essentials/](http://hubblesite.org/the_telescope/hubble_essentials/) (Hubble Space Telescope + overview)
- <http://www.howstuffworks.com/hubble2.htm> (Hubble Space Telescope)
- <http://sm3a.gsfc.nasa.gov/classrm-parts.html> (Hubble Space Telescope)
- <http://www.rochesterforkids.com/hubble.htm> (Hubble Space Telescope + pictures)

- <http://instruct1.cit.cornell.edu/courses/astro101/java/parallax/parallax.html> (parallax + interactive + animation)
- <http://www.sciencenewsforkids.org/> (science news)
- [http://www.seasky.org/sky\\_games.html](http://www.seasky.org/sky_games.html) (space + games)
- [http://www.jpl.nasa.gov/solar\\_system/](http://www.jpl.nasa.gov/solar_system/) (solar system)
- <http://antwrp.gsfc.nasa.gov/apod/> (astronomy + picture of the day)
- <http://www.exploratorium.edu/ronh/weight/index.html> (planets + weight)
- <http://www.pbs.org/deepspace/> (deep space)
- <http://science.nasa.gov/Realtime/JTrack/Spacecraft.html> (NASA satellite tracker)
- <http://www.nasa.gov/audience/forkids/kidsclub/flash/index.html> (NASA Kids)
- <http://spaceplace.nasa.gov/en/kids/> (NASA Space Place)
- <http://www2.jpl.nasa.gov/basics/> (NASA + space flight)
- [http://www.spaceday.org/conmngmt/index.php?option=displaypage&Itemid=60&op=page&SubMenu= \(games\)](http://www.spaceday.org/conmngmt/index.php?option=displaypage&Itemid=60&op=page&SubMenu= (games))
- <http://curious.astro.cornell.edu/index.php> (astronomy + Q & A)
- <http://www.virginiasol.com/test/space.htm> (solar system + quiz + interactive)
- <http://coolcosmos.ipac.caltech.edu/> (infrared astronomy)
- <http://www.marsquestonline.org/> (Mars overview)
- <http://www.driveonmars.com/> (Mars + virtual/interactive activity)
- <http://www.quia.com/quiz/236496.html> (solar system + quiz + interactive)
- <http://www.kidsastronomy.com/fun/index.htm> (astronomy + games + interactive)
- <http://amazing-space.stsci.edu/resources/explorations/trading/directions.html> (solar system + game + interactive)
- <http://quest.arc.nasa.gov/projects/astrobiology/astroventure/> (tutorial + interactive + design your own planet)
- <http://www.quia.com/custom/30289main.html> (universe + games + interactive)
- [http://www.acme.com/jef/singing\\_science/](http://www.acme.com/jef/singing_science/) (space + songs)
- [http://www.windows.ucar.edu/tour/link=/games/space\\_sense\\_intro.html&edu=elem](http://www.windows.ucar.edu/tour/link=/games/space_sense_intro.html&edu=elem) (space + quiz + interactive)
- <http://www.songsforteaching.com/sciencesongs.htm> (space + songs)