



## The Local Galaxy Volume Lesson Plan

**Time:** 40 minutes

**Goals:** To gain an understanding of the content and distances to the nearby galaxies in our Local Volume.

**Objectives:** Students will:

- Watch “The Local Galaxy Volume” segment of the “How far away is it” video book
- Take a short quiz

**Materials:**

- Internet connection with a computer for viewing [“The Local Galaxy Volume” segment on YouTube](#)

**Directions:**

- Introduce ‘The Local Galaxy Volume’ segment as a deeper look into the wide variety of galaxies close to our own. Let them know that they will see spiral galaxies, lenticular galaxies, and irregular galaxies. They will see galaxies in visible light and in infrared light. The difference in appearance can be dramatic.
- Show the video.
- Review what they saw:
  - Irregular galaxies.
  - Galaxies with active centers and jets.
  - Massive galaxies, small galaxies and everything in between.
  - How we organize galaxies by their shape.

**Assessment:**

Take a simple quiz. Print and distribute the quiz on page 2. Here are the answers:

- It is not uncommon to see the shape of the disk around a galaxy’s center warped one way or another. What do we think causes the disks to take on a warped shape?  
**Answer:** a) A close encounter with another galaxy.
- What is at the center of galaxies that ejects jets of high-speed gas into space?  
**Answer:** a Black Holes
- How do we know how far away these Local Volume galaxies are?  
**Answer:** c) We find standard candles within them.



## The Local Galaxy Volume quiz

- It is not uncommon to see the shape of the disk around a galaxy's center warped one way or another. What do we think causes the disks to take on a warped shape?
  - a) A close encounter with another galaxy.
  - b) A black hole at the center of the galaxy.
  - c) Other distant galaxies.
  - d) Gas in the galaxy's halo
- What is at the center of galaxies that ejects jets of high-speed gas into space?
  - a) An included dwarf galaxy.
  - b) A supermassive black hole.
  - c) Gas clouds.
  - d) Rotating globular clusters
- How do we know how far away these Local Volume galaxies are?
  - a) Parallax measurements
  - b) H-R Diagram
  - c) We find Standard candles within them
  - d) We measure the mass of their central black holes

