

The big three: Spatial, spectral, temporal

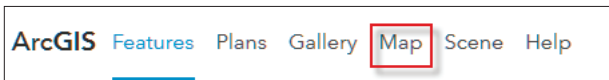
under 30 minutes

Remotely sensed images all have three things in common: a spatial, spectral, and temporal component. The spatial resolution of an image refers to the size of the smallest object that can be resolved on the ground and in digital imagery is limited by its pixel size. The spectral resolution of an image describes the frequency of the electromagnetic spectrum collected by the satellite. This spectral characteristic allows different features to be seen as separate entities. The temporal resolution of an image is defined as the amount of time needed to revisit and acquire data for the exact same location. In this activity, you will look at three different types of remotely sensed images, describe their spatial, spectral, and temporal components, and record your findings in the chart below.

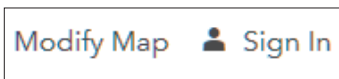
Satellite	Spatial Resolution	Spectral Resolution	Temporal Resolution
Landsat 8			
MODIS True Color			
NAIP Preview			

1. Go to [ArcGIS.com](https://www.arcgis.com).

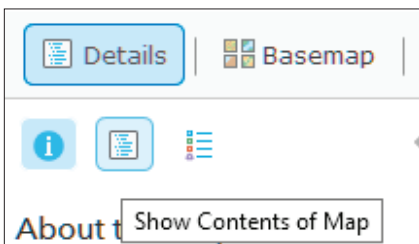
2. Click Map on the top ribbon.



3. Click Modify Map.



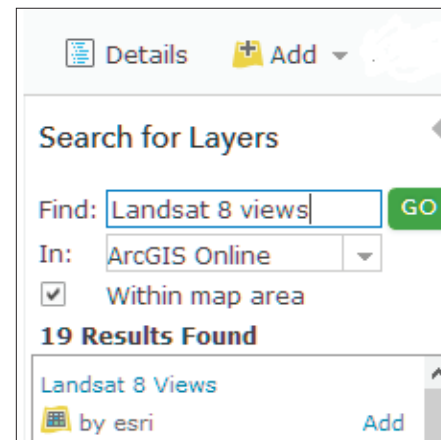
4. Click Details and select Contents.



5. Click Add then select Search for layers and ArcGIS Online.

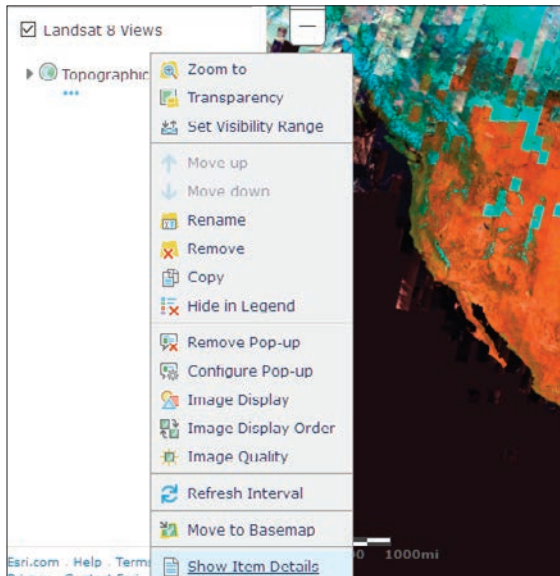
6. Search for Landsat 8 views.

7. Click Landsat 8 Views and Add.



8. Click the Back Arrow.

9. Click Show Item Details.



10. Read the item details and record the spatial, spectral, and temporal resolution in the chart.

11. Repeat steps 6–10 searching for MODIS True Color.

12. Add MODIS True Color – Terra Surface by Esri and record information.

13. Repeat steps 6–12 searching for NAIP_Preview by Esri.

14. Add NAIP_Preview by esri_atlas and record information.

Q1 Which of the three images shows the most detail?

Q2 Which of the three images has the most spectral reflectance information?

Q3 Which of the three images has the shortest and the longest temporal interval?