

Topographic Maps of Texas

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The Houston Gem and Mineral Society received a gift of outdated topographic maps of Texas. Each kit comes with a different map. Topo maps are basic tools of geologists, hydrologists, hikers, and anyone else who deals with the surface of the Earth. Let's look at some features that you will find on your map

What area does my map cover?

1. The lower right hand corner has the **name** of the map and when it was published. Most of these maps are 40 years old: many things are still the same but do not be surprised if you find missing freeways or re-routed highways.
2. Just to the left of the name is an **index** map showing what area of Texas is covered.
3. The corners of the map show their latitude and longitude in degrees, minutes, and seconds.
4. The bottom center of the map has bars to indicate the **scale** of the map in miles, feet and kilometers. Practice by measuring between two features that are about 3 inches apart on the map. Take a piece of paper and make two tick marks on it for the distance. Now put the paper on the foot scale on the tick for the 1000-foot scale. If you are measuring points that are 3 inches apart, you will likely put the right hand tick mark on the 6000 foot point. Note that the left tick mark will be past the 0 mark, but that is OK. The distance will be 6000 feet plus however many 100 foot marks are needed to measure out to the left most tick mark. If you like, you can estimate even finer divisions. Try it.

Transportation.

5. The key above the map name shows the color-coding of the **roads**.
6. A useful feature that not in this key is the **railroad** tracks. The symbol is a black line with short crossbars on it. Frequently the tracks have the labels "Southern Pacific" or "Union Pacific" on them. See if you have these symbols on your map.
7. **Pipelines** are shown by dashed lines and the word "PIPELINE". These maps have many.

Cultural features.

8. Find a **town**. You will see little black squares that represent individual houses. Note that there are lots of houses that are outside of the towns. Densely built areas are shaded red.
9. Lots of things change on a map, particularly one this old, but **churches and cemeteries** are longer lasting than most. Cemeteries are indicated with a cross and the name plus the word "Cem". See what you can find. Look for churches, each shown as house with a cross atop it.

Hydrology and topography.

10. **Lakes, rivers,** and canals are shown in blue. Intermittent streams are shown in blue dashed lines. Check to see if all the streams flow into a river. Areas with lots of plants are green.
11. **Contour lines** are most important because they let the user know the topography, the shape of the Earth's surface, before visiting a site. A contour map could help, for example, to determine if your house is likely to be flooded. A legend in the bottom center of the map gives the contour interval, the number of vertical feet between lines. Find the brown contour lines on your map. Note that the streams and rivers are bounded by many contour lines. That is because the river has cut into the sediment and is below the general surface of the surrounding area. Notice that the lines nearest the river are labeled in lower numbers than the ones farther away. That means that if you started to walk to a river that you would be walking downhill. Closely spaced contour lines indicate a steep surface. A "V" in the pattern of contour lines means a ridge (if it points downhill) or a valley (if it points uphill).

USGS map key: <http://erg.usgs.gov/isb/pubs/booklets/symbols/topomapsymbols.pdf>