



## GIS and Young Learners

Teachers and parents of even the youngest students have asked about using [ArcGIS Online Map Viewer](#) with children in fourth grade and below. Even very young learners can handle key concepts and essential technology skills surprisingly quickly when introduced appropriately. Parents and teachers must judge whether specific learners are interested in and would gain from particular experiences. Educators have had success using items below, scaffolding concepts and skills appropriately. (What is "appropriate" can vary significantly based on individuals and backgrounds, and variation increases with age. Typically, instruction should start with what is familiar to the student and increase gradually in complexity.) Teachers should understand the technology first see <http://esriurl.com/gettingstartedforeducators>).

1. Look at an overhead (bird's eye view) 2D image of home/school and identify familiar features.
2. Trace onscreen (finger first, then mouse) a known route (e.g., from home to a friend's home).
3. Create MapNotes for points, lines, and areas to represent known locations, and use symbols that represent specific features appropriately (e.g. fire truck for fire station).
4. Pan around and zoom in/out; using MapNotes with different symbols helps anchor their relative location.
5. Measure distances (start with home, school building, a block, a football field, or a known route).
6. Change basemap from imagery (more concrete) to representational display (more abstract, e.g., topographic or streetmap) and use existing MapNotes to help anchor locations.
7. Turn layers on/off, and modify layer transparency.
8. Describe landscape patterns -- trees, buildings, roads, hills, waters, names of features and regions.
9. Use directions appropriately in referencing features; adults must use *north, south, east, and west* and *up, down, left, and right* carefully, considering the device/screen position, map rotation, and 2D/3D displays.
10. Use the Find tool to search for specific addresses or place-names; use pop-ups to find info.
11. Recognize and use names of physical features (continents, oceans, rivers, mountains, etc) and human features (countries, states, cities, Equator, lines of latitude and longitude, etc).
12. Use latitude and longitude to describe absolute location.
13. Adapt to 3D [Scene Viewer](#) and new versions of pan, zoom, rotate, tilt, above/below, and direction.
14. Adapt to other web apps that offer similar/different tools in similar/different locations.
15. Navigate to a website and find specific publicly accessible maps.
16. Log in to a website that permits saving and accessing one's own content.
17. Add specified layers to a map and adjust their sequence (in contents) appropriately.
18. Save a map properly, in the correct location, and with appropriate name/tag/description.
19. Use the legend to translate map symbols to identify characteristics of features (e.g., bigger dot = bigger earthquake, blue line = river, darker shaded polygon = more intense); confirm via popups.
20. Open/Close the table for a layer and match different ways to see a feature (symbol, popup, table, legend).
21. Drag & drop a CSV table of local data (birdhouses, playground bases, cars in lot, etc) onto the map
22. Change symbols of features appropriate to the data and task.
23. Use GPS (or Map Viewer measure tool) to identify lat/long (decimal degree) of local features outdoors.
24. Create a table with several features, each with lat, long, feature type, feature numeric value (e.g. height), feature categorical value (e.g. color), name of collector/team; save the table as a CSV file.
25. Share the map with others in the class/Org.

Then see the "[GeolInquiries: Elementary](#)" activities and "[Thinking Spatially Using GIS](#)" lessons.