

Designing field report assessment tasks with the use of GIS

This document provides a guide on how to incorporate the use of geospatial technologies (ArcGIS) into field report assessment tasks.

Context

Senior geography syllabuses mandate the use of geospatial technologies. Students are graded against criteria that specifies the application of geospatial technologies. Therefore, it is imperative that teachers deliberately incorporate the use of geospatial technologies into the planning and design process for assessment tasks.

Poorly designed assessment tasks can have flow-on effects; if the assessment task has been designed without an appropriate scope for the application of geospatial technologies in mind, it could result in students being unable to demonstrate or meet the criteria.

The use of geospatial technologies in field reports

When creating field report assessments, you should consider the use of geospatial technologies in two ways:

1. Geospatial technologies available to assist in the collection of field data
2. Geospatial technologies available to assist in the visualisation – and further manipulation – of collected field data.

Geospatial technologies for field data collection

Survey123

[Survey123](#) provides you with the ability to create and design your own surveys. Once survey data has been collected, users can analyse and map their results. This application is great for supporting field trips as each survey can store one instance of locational data in the form of a point, line or polygon.



Collector for ArcGIS

[Collector for ArcGIS](#) is more complex to set up in comparison to Survey123 but fieldworkers (students) can collect multiple pieces of point, line or polygon data without having to submit a new survey at each location.



When would I choose Survey123?

Survey123 is most useful when collecting detailed data from a single geographic point. For example, Survey123 would be more suitable if fieldworkers were conducting a health check on a local waterway and were collecting data from several specific locations along the waterway.

The survey could be designed so that it includes a question that requires fieldworkers to input the location of the data collection point. Then fieldworkers would have to populate the rest of the survey with qualitative and quantitative observations. Read through the image below to see this in action:


TEST_Waterway_health_check

Description content for the survey

What data collection site are you collecting from?*

Site A

Place the current site on the map.*



Lat: 133.79541 Lon: -26.01619

Has it rained in the last 24 hours?*

Yes

No

Describe the land use that surrounds the current site.*

Natural state

Evidence of litter*

Make notes on the type of litter floating on or in the water, or on the surrounding land (include litter natural litter such as, sticks, animal faeces and leaves).

1. Very significant human litter e.g. car bodies, tyres, plastics, cans, oily films
2. Significant human litter e.g. cans, plastics
3. some human litter e.g. plastics, garden rubbish, food scraps
4. Insignificant human litter e.g. few pieces of plastic, natural litter evident
5. No human litter evident; only natural litter

3


Please input a number between 1 and 5

Water clarity*

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brown/Green colour with particles and scum; can't see through it	Brown/Green colour with particles and scum; can just see through	Some colour and particles; still murky	A little colour; fewer particles	Clear water; fewer particles	Clear water; no particles

Take a photo of your water sample.*

Select image file



What is the pH level at the site?*

e.g. 6.5, 8.4

7.3

As seen in the example above, Survey123 allows fieldworkers to capture detailed information about a single location or site. Fieldworkers would have to open the survey anew each time they collected data from a different site.

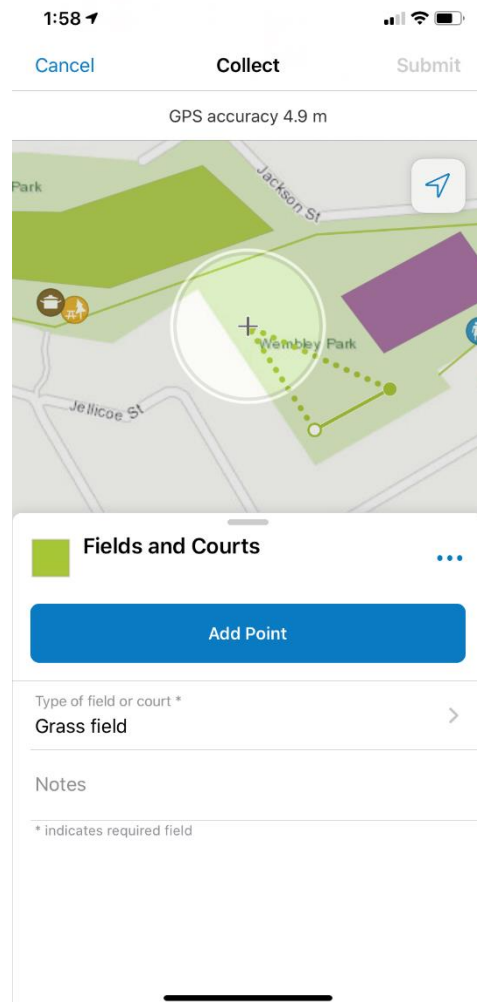
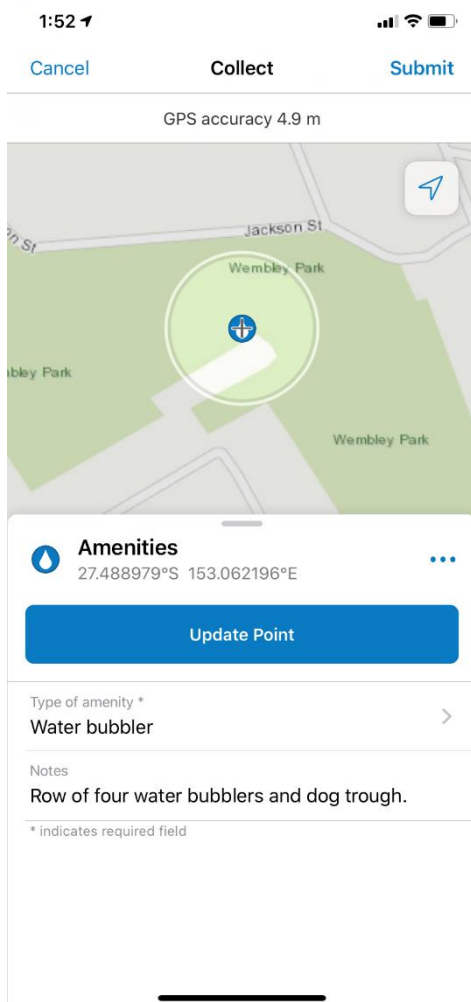
Professional Development resources for Survey123:

- [Video tutorial: Creating and designing a survey in Survey123](#)
- [PDF guide: Creating and designing a survey in Survey123](#)
- [Video tutorial: Analysing your Survey123 results](#)
- [PDF guide: Analysing your Survey123 results](#)

When would I choose Collector for ArcGIS?

Collector for ArcGIS is most useful when collecting data of a more general nature in an area. Collector requires fieldworkers to first set up the basemap in ArcGIS Online; users create points, lines, and polygons according to the type of data they will be collecting when in the field. When in the field, Collector for ArcGIS uses GPS to map points, lines, and polygons. Users can make notes about the data they collect and can also attach images to the mapped features.

In the images below, we looked at the amenities and services available in a local park. We were able to map water bubblers, barbeques, bathrooms, and picnic tables, as well as the types of fields and courts in the park.



Professional Development resources for Collector:

- [Video tutorial: Collector for ArcGIS](#)
- [PDF guide: Collector for ArcGIS](#)

Geospatial technologies after data collection

Once data collection in the field has been complete, the important task of making use of the data arises. This can include further analysis and manipulation, and styling and presentation of data.

Data that is collected using Survey123 and Collector for ArcGIS can be viewed and manipulated in ArcGIS Online. If mistakes occurred during the data collection process (e.g. site location is wrong), then these mistakes can be rectified in ArcGIS Online.

ArcGIS Online also allows users to view their data in collaboration with other feature layers or data. This allows users to identify patterns and anomalies, which in turn helps them draw conclusions. Furthermore, users can style collected data so that it aids in the visualisation and communication of the data.

Users can take screenshots, use *Snipping Tool* or print the map with a legend. These methods allow users to copy maps and feature layers to their field report in a word document.

Next Steps:

Request a free ArcGIS Online Account for your school:

Australian schools can request a free ArcGIS Online account as part of Esri Australia's Classroom GIS Initiative. A school subscription provides additional map layers, content, features and privacy. Learn more about ArcGIS Online, and apply for your ArcGIS Online School subscription at <http://esriaustralia.com.au/education>

Speak to Esri Australia's Education Program Manager:

Australian schools can seek additional support or speak to our Education Program Manager by emailing education@esriaustralia.com.au.