

GROUNDTRUTH

NETWORK

Teachers Overview

Introduction

The following lesson sequence is designed to give students opportunities to explore their local area in the context of change over time. They will communicate, collaborate and share their learning through the creation of a video that can be uploaded to the GroundTruth Network website. Students will have the opportunity to discuss and contribute to the development of this online resource that focuses on how humans and nature are changing the environment we live in.

The lesson sequence can be delivered in Geography as part of the Year 7-10 curriculum. The GroundTruth Network resource, as a combination of learning in Science and Art, would also lend itself to a cross curriculum project-based learning opportunity in the junior secondary space. More detail has been provided on this in the Curriculum Links section.

The lesson sequence will specifically provide students with an opportunity to examine an interactive resource that explores local change in three locations across Queensland using satellite imagery. Students will then explore change in their local area using a variety of geospatial tools and think about how and why their local area has changed. Students will end the lesson sequence by considering how their local area will change in the future.

The first activity will direct students to engage with the Ground Truth Network interactive resource and provide some general information on some of the technology that will be discussed in the forthcoming activities. Students will explore what ground truthing is, career options in the field of geospatial sciences and students will explore the three locations in the resource.

The second activity will have students bring up data that is local to them so that they can observe some of the changes that have occurred over time. Students will ground truth their own school, town or nearest populated place using a range of technologies before being invited to explain the changes that have occurred between when their historic aerial image was taken and today. Finally students will reflect on what changes their area might experience in the future.

The third activity provides a more in-depth case study of a specific environment that has experienced biophysical or anthropogenic changes that is evident in one of the interactive animations (Brisbane, Birdsville, Cape York). Students will use their knowledge and understanding to explain why these changes have occurred and then make predictions as to how positive change will occur in the future.

Finally, the fourth activity will involve students creating a short video that allows them to explore changes in an area over time using imagery. Students will develop this 1-2 minute video using a guiding question provided by the teacher. The short video will allow students to be creative in the telling of a story using satellite and other imagery, as well as sound, similar to the examples provided on [GroundTruth Network TV](#).

(Please note GroundTruth Network Interactive works best using Google Chrome)

GROUNDTRUTH

NETWORK

Resources required

The classroom teacher should have access to a data projector or large screen.

Students will need access to a computer or laptop to complete the activities. Students will need access to the following websites to complete the lesson sequence:

- GroundTruth Network - <https://groundtruthnetwork.com>
- Queensland Government QImagery - <https://qimagery.information.qld.gov.au>

Student may also need to access imagery from the Desktop version of Google Earth which can be downloaded at no cost.

Google Earth - <https://www.google.com/earth/versions/>

To complete the activities in Lesson 3 students will need to have access to an app or program that allows them to create a short video. Examples of program or apps have been provided in the lesson overview.

Curriculum links

This lesson sequences links to the Australian Curriculum: Geography. The lesson sequence could be used in a number of units that include the use of satellite imagery and geospatial tools to examine change over time. These include:

Year 7 Unit 2: Place and Liveability

- Geographic Knowledge and Understanding - ACHGK043 - Factors that influence the decisions people make about where to live and their perceptions of the liveability of places
- Geographic Inquiry and Skills - ACHGS051 - Interpret geographical data and other information using qualitative and quantitative methods, and

digital and spatial technologies as appropriate, to identify and propose explanations for spatial distributions, patterns and trends, and infer relationships

Year 8 Unit 2: Changing Nations

- Key Inquiry Question - What are the consequences of changes to places and environments and how can these changes be managed?
- Geographic Knowledge and Understanding - ACHGK059 - Management and planning of Australia's urban future
- Geographic Inquiry and Skills - Interpreting, Analysing and Concluding - ACHG2059 - Interpret geographical data and other information using qualitative and quantitative methods, and digital and spatial technologies as appropriate, to identify and propose explanations for spatial distributions, patterns and trends, and infer relationships

Year 10 Unit 1: Environmental Change and Management

- Geographic Knowledge and Understanding - ACHGK074 - The application of geographical concepts and methods to the management of the environmental change being investigated
- Geographic Inquiry and Skills - Interpreting, Analysing and Concluding - ACHGS076 - Interpret and analyse multi-variable data and other geographical information using qualitative and quantitative methods, and digital and spatial technologies as appropriate, to make generalisations and inferences, propose explanations for patterns, trends, relationships and anomalies, and predict outcomes
- Geographic Inquiry and Skills - Interpreting, Analysing and Concluding - ACHGS078 - Identify how geographical information systems (GIS) might be used to analyse geographical data and make predictions

This lesson sequences also addresses the skills required in the Information and Communication Technology (ICT) General Capability across Years 7-10.

GROUNDTRUTH

NETWORK

Cross-Curriculum Opportunities

This lesson sequence has been designed to allow for a cross-curricular project-based learning experience for students. For example, the course could be a two week Visual Art, Digital Technologies, Geography and Science research task, culminating in the submission of a 2 minute video on the student's own ground truthing. This video could be submitted as a summative assessment task.

Lesson Sequence

Lesson One

Start the lesson by projecting one of the GroundTruth interactives so the entire class can see it. These can be found on the [GroundTruth Network website](#)

Ask your students what they think they are looking at. Ask them how they think that data was collected. Tell them that over the course of the activities they are going to explore different parts of Queensland from space, including places they are very familiar with.

Direct students to 'Activity one - student handout' and ask them to complete the 'EXPLORE' section on their handout.

Once your class is ready, move them on to the 'DISCOVER' section and give them time to complete the questions.

Once your students have completed the investigation and associated questions, review some answers to ensure students understand where the data came from, how it is collected, its benefit to society and some of the career options in the field.

Lesson Two

Prepare for the lesson by using the QImagery resource, outlined in 'Activity two - student handout', to find an aerial image of Brisbane's CBD from the 1949 Sanford series. Frame 5044 covers the area well.

Project this image so the entire class can view it. Ask them what they think has changed over the time period since then. Guide them through some of the following changes to show them how to interpret an aerial image.

Note features like the number of river crossings, the height of buildings, major roads such as the Riverside Expressway and the density of the CBD and immediate surrounding suburbs like Milton, Herston and Woolloongabba.

Direct students to the EXPLORE section of 'Activity two - student handout' and tell them they are now going to find historic imagery of an area close to them. Note there are two options provided to access historic imagery. Students should try to use the QImagery resource first as it provides older imagery than Google Earth.

Once students have explored their area, they can begin the DISCOVER section of their handout. Here they will need to really think about what changes have occurred in their part of the world over time. They finish the activity by thinking about future changes that might occur.

Lesson Three

Introduce students to the guiding question based on one of the GroundTruth Network interactive animations on the website. For example, students could focus on the Brisbane River if they live in Brisbane. The guiding question could be 'Can the Brisbane River ever be blue again?'

Students work in pairs to develop an answer to this question. Students use the Brisbane interactive animation to develop an explanation of how the colour of the river has changed over time. They do some research online to

GROUNDTRUTH NETWORK

find evidence as to why these changes have occurred. In particular, students should consider how natural disasters such as the 2011 floods impacted on the Brisbane River. In pairs, the students develop a concept map using either butchers paper and pens, or a program such as Inspiration Maps, to look at the causes and effects of this change in colour of the river.

Students will then use this knowledge to propose an action that will 'make the Brisbane River blue'. This action will then be presented to the class as a small poster and supported by the concept map. Students should include visual representations, annotated photos and text on their poster.

Lesson Four

Introduce the lesson activity by watching examples of videos created for GroundTruth Network on [GroundTruth Network TV](#). Discuss what attributes these videos have, how have they been put together and what story the video tells. Ask students to explain how the videos show change over time.

Divide the class into groups. Provide the group with a case study to develop a rough storyboard for another movie to be added to [GroundTruth Network TV](#). The student groups should consider the types of images, audio and the types of information that would be included in the voiceover. Students share their ideas with the rest of the class. The case study would be based around the interactive animations of Brisbane, Cape York and Birdsville. Here, depending on the class context or year level, the task can be differentiated from simply showing Before and After photographs, or to be creative at a

more complex level by exploring differing ways to visualise the ground truth data the students have collected.

The students then use this scaffold and thinking to develop their own video. This video can either be created individually, or in groups. The teacher can use the same guiding question, or develop other questions for the students to consider when putting together their video. Students should use the steps outlined on [GroundTruth Network Create](#) when putting together their video. Students should develop a rough storyboard of their ideas and imagery, before creating the video. Students should also consider sound, the script for their voiceover and ensuring they acknowledge any sources or the creator of the soundtrack in the credits. The video can be created using a variety of programs or apps, including PowerPoint, Keynote, iMovie, Vine, Splash, Clips, PicPlayPost, Slidelab or Photo Slideshow Director.

Students should submit their video by the end of the lesson. The following lesson each video can be played as part of a 'GroundTruth Network Film Festival'. Students can provide constructive feedback or vote on their favourite movie. The videos can be submitted to groundtruthnetwork@gmail.com to be uploaded and shared on GroundTruth Network TV. Teachers should ensure they have followed their school's policies and procedures around uploading student work if they want to upload student work. As the GroundTruth Network website is developed, opportunities for students to comment on, discuss and contribute to the work of others will be provided.

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