



## Reporting: Using ArcGIS online for data and information sharing

### Standards addressed:

#### *Next Generation Science*

#### Technological Design

- Standard 1: Design, modify, and apply technology to effectively and efficiently solve problems.
- Standard 2: Career Planning: Explore and understand educational and career options in order to develop and implement personal, educational, and career goals.

#### *Common Core Standards Language Arts (grade 5)*

#### *Common Core Standards for Literacy in History/Social Studies, Science, and Technical Subjects (grades 6-8).*

#### Reading: foundational skills

- Phonics and Word recognition
- Fluency
- Key ideas and details
- Craft and structure
- Integration of knowledge and ideas
- Range of reading and text complexity

#### Writing

- Text types and purposes
- Production and distribution of writing
- Research to build and present knowledge

#### Speaking and listening

- Comprehension and collaboration
- Presentation of knowledge and ideas

#### Language

- Conventions of standard English

- Knowledge of language
- Vocabulary acquisition and use

### **Learning objectives:**

- At the ArcGIS online site look at story map templates and choose a template for your story map.
- Use the ArcGIS online as a mapping tool to identify the school location.
- Use the ArcGIS for a reporting tool to relay information as to results of actions relating to management of slugs and snails and information on population composition.
- Use of ArcGIS as a reporting tool to relay information as to results of actions relating to community education.
- Using pictures and words, tell a compelling and informational story using the ArcGIS online, story mapping software.

### **Reading for Understanding:**

#### ArcGIS online

ArcGIS online is a technology program that is free to all K-12 schools in Hawai'i. The software can be downloaded from the Maui, Women in Technology Distribution Center website:

<http://www.womenintech.com/GISDistributionCenter/>

Hawai'i was the first state in the nation to provide this software to the entire educational system in a partnership with ESRI, the Women in Technology Project, and the State of Hawai'i's Department of Education. ArcGIS online is a simplified, map-making and data sharing, story mapping program. Professional development workshops are available for teachers and students throughout the state via virtual classes and trainings. Using this technology in the classroom is an entry pathway for students to become familiar with the program and can eventually lead to the use of ArcGIS. ArcGIS is an important tool for researchers and students in higher education, and it is used by city, county, state, and federal planners. ArcGIS uses maps and geographic information, provides data analysis tools, and can aid in projecting and improving planning as populations, land use, and climate changes.

ESRI provides the software for ArcGIS online free of charge to public, private, homeschool, and youth clubs. This technology program is widely applicable to a number of subjects and areas of study, and incorporates Language Arts and Social Studies components. Any teacher or school can request the software at:

<http://www.esri.com/industries/education/software-bundle#>.

A PDF of an educational guide for GIS is available for download at:

<https://esri.app.box.com/v/gettingstartedforeducators>

There are multiple templates and step-by-step instructions for creating a story map. Besides maps, you can create content that can include photos and videos. This technology platform will allow students, teachers, and schools with school garden projects from across the state to share information. This can lead to a better understanding of the location of invasive gastropod populations as well as population changes based on weather and temporal information. As we better understand these invasive populations and the results of control efforts, we can better understand how to control and lower the instance of the rat lungworm parasite in our communities and state. Using ArcGIS online will allow the information to be available to other schools as well as state agencies working to lower the incidence of the parasite, its hosts, and the disease. To view an example of a story map created, which describes the rat lungworm education for school gardens pilot project, go to the link below.

<https://uhh.maps.arcgis.com/apps/MapJournal/index.html?appid=5ccc2fa5cf7b441fa2711c5b60e853b6>

### **Learning Activities:**

Students will view story map examples and templates available through the ArcGIS online website and/or the link provided above. The class will come to a consensus as to which template will be used for the story map project for your school.

Students will create visual records of activities (photographs, videos) that can be used for the story map to be created. If any pictures of students or individuals are to be used, teachers and students must make sure the proper paperwork is filled out

and on file that provides evidence of permission for the photo to be used. Students will work with the teacher and class to create electronic folders in which to store the videos and photographs.

Students will assist in the creation and updating of class journal to record events pertaining to the school garden and slugs/snails/flatworms that can be of interest for use in a story map.

Students will work in groups to create content for the story map, which will include the following information.

- Information about their school which should include school name, location, elevation, information about the community in which the school is located.
- Information about the school garden project and comments as to the situation in the garden with slugs and snails and any information as to why the garden is important for your school.
- Information, if any, on prevalence of rat lungworm disease in your community.
- IPM control efforts taken to reduce slug and snail populations and rats at your school garden (what shelter types, baits, etc. are in use).
- Identification and photographs of slugs, snails, and flatworms found at the school or school garden.
- Data collection results shown in graph and chart forms.
- Identify issues affecting the success of efforts, what could be changed to make efforts more effective.
- Any other information, insights, or experiences considered important to include.

This material is written by Kathleen Howe and produced by the Hawaii Island Rat Lungworm Working Group with funding from the Hawaii Invasive Species Council and support from the Daniel K. Inouye College of Pharmacy.