


Lesson 14

Objective: Apply the engineering design process to develop, build, and test a solution that makes Howland Island easier to find.

Launch 7 minutes

Display the satellite image of Howland Island from Google Maps™ mapping service (<http://phdsci.link/1099>). Have students imagine how the runways on Howland Island would have looked in 1937. 

To provide additional background information on the runway construction, read an excerpt from the *Townsville Daily Bulletin* article (Associated Press 1937) (<http://phdsci.link/1101>): “At the present time, Hawaiian boys of the Kamehameha school are maintaining the wireless station and working to clear the areas of Howland of debris to provide landing facilities for Mrs. Amelia Earhart. ... There is a possibility that they may also lay concrete runways in time for her arrival.” Explain that the young men only had time to scrape away an area for the runways and press ground-up coral along the cleared area.

- Based on what you know about Howland Island and the relationship between light and sight, what potential challenges would Amelia have faced in finding the runways on Howland Island?
 - *It sounds like they made the runway out of the materials on the island, so it is probably a similar (analogous) color to the rest of the island. I don't think it would be easy to see.*
 - *The island is small and the runway is even smaller, so I think it would be harder to see in the conditions we modeled.*

Display the photograph of a current airport's runway (Lesson 14 Resource A).

Agenda

Launch (7 minutes)

Learn (35 minutes)

- Review Engineering Design Process (5 minutes)
- Prepare for Engineering Challenge (15 minutes)
- Imagine and Plan a Design Solution (15 minutes)

Land (3 minutes)



Differentiation

English learners may benefit from additional support with the term *runway*. Show students photographs of different runways, and create labels as needed.