

Science/Operations Tool Tutorial

Introduction

This tutorial shows you step by step how to use the science/ operations tool. Start by getting the Internet address for the tool from your teacher. Get on a computer and go to that address. This address is different than the address you will use on mission day.

As a science/ operations expert, you rate the sites you are examining to make sure that they 1) are large enough (10 km² minimum), 2) have adequate hematite, and 3) are flat enough. This tool helps you determine the area and hematite and also helps you to visualize the landforms near the site.



Note: The letter name of each site you are examining will be given to you by the navigation experts. They should give this information to you about every 8 to 12 minutes.

Step-by-step Instructions

Before you begin, you need to conduct an equipment check at the point of origin. Once you load the correct Internet address for the tool, you will see two images on the screen. The one on the left is an overhead view of the mission target zone. On the right is a close-up view of the site of interest. Start at the point of origin and collect data from that site.

- 1. Choose a geometric tool that fits the shape in the image.
- 2. Click and drag the vertices (the red points) to stretch the geometric shape over the shape in the image.



Click and drag the vertices to stretch the shape over the image.

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3. Drag the measurements from the geometric shape into the empty boxes in the "Area" formula below. The measurements are color coded with the formula to help. The computer automatically calculates the area of the site.



- 4. Drag the answer (area) from the first formula into the empty box in the second formula, called "To tal A mount of H ematite." This for mula tells you how much hematite the site contains. The computer automatically calculates the amount of hematite measured at the site.
- 5. Rate the site from 1 to 3, with 1 the best rating and 3 the worst. Type your rating into the box at the bottom of the screen and click the Submit button.
- 6. Record the site area, hematite content, and site rating on the sci/ops report form and pass this form to the communications experts for your team.

Now that you've completed the equipment check, you are ready to collect data on the sites that the navigation experts select. When the navigation experts give you the name of the first site your plane will visit, click on that site on your map.

- Repeat steps 1-6 each time the navigation experts give you a new site to survey.
- When your plane runs low on fuel, you need to find a site that is flat and has enough space to land your plane. You must work with your teammates to determine if your plane has enough fuel remaining to reach the site you select. You will send your landing site information verbally to mission control on mission day.