

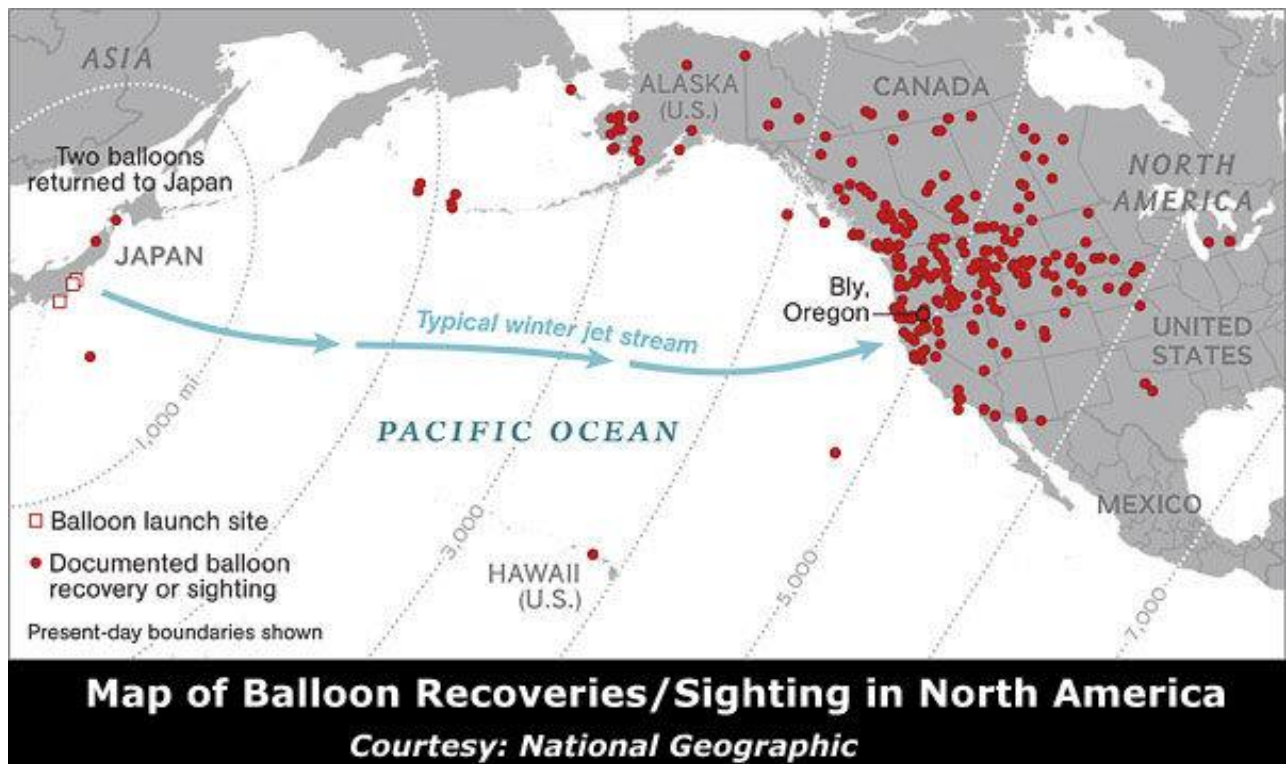


## The Home Front

### Class Activity – Desperate Move... Using Wind Energy

#### Introduction:

During WWII the Japanese military sent thousands of large balloons toward the United States. The large balloons carried bombs and fire-starting devices. The distance between the two countries was approximately 6,000 miles. The Japanese military had to deal with storms, wind, distance, and the United States military shooting down the balloons. Amazingly, the Japanese had some success even though there were so many variables working against them.



#### Additional Information:

- [Oregon Secretary of State](#)
- [War Balloon Information](#)
- [War Balloon Info \(US Air Force\)](#)

# Dakota Pathways



## Activity:

During WWII the movement of air carried balloons from Japan to the shores of the United States. Your students will conduct a hands-on science activity in which they will use the movement of air to complete a task. They will also learn how decreasing the volume of a container increases the pressure resulting in the movement of air.

- The goal of this activity is to build a device that will move a volume of air from one location in the classroom to another. The photos below show two devices, one was purchased ([Air Zooka](#)) and the other was made by duct taping plastic sheeting to the top of a garbage can. A carpet knife was then used to cut a circular opening in the bottom. Both devices below are designed to move air by changes in pressure. Construct (or purchase) a device like one of the examples shown below.



- Class Demonstration - The plastic bladder is pulled back increasing the volume which decreases the pressure, as a result air is drawn in. Then the bladder is released or pushed toward the center decreasing the volume, resulting in an increase in pressure so the air then moves out. The picture on the next page shows the [characteristic smoke ring](#) that is produced with the garbage can. A Halloween fog machine was used to fill the garbage can. ([Video of rings](#))

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- Each student (or pair) should construct a device (example below) like the Air Zooka using items found around their kitchen/house. The device must be able to perform a task (extinguish a candle, move a Styrofoam cup, move a piece of paper/cloth, etc.) specified by the facilitator.



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The students may choose to design/construct a completely different type of contraption used to move air, but the same principle should be demonstrated. The device should be decorated/customized.

## **Taking it to the Next Level:**

Continue increasing the distance until one student remains. Have the student(s) with the greatest distance autograph the classroom Air Zooka to display as an incentive for the competition next year. Maybe play Queen's *We Are the Champions* during the signing.