

## Spatial Aura - Who Is Within the Range of a Missile?

This map illustrates the idea of a **spatial aura** or **buffer**. In geography, those words mean "a zone of influence around a point or a line." Examples include smell from a skunk, smoke from a factory, noise around an airport, or higher property values around a park.

In this example, the red star is a missile-launching base located near the center of North Korea. The estimated range of a missile from this base is about 700 miles.



The map-maker drew a circle centered on this missile base, with a radius of 700 miles. Any point within this circle could be vulnerable to attack by a missile. In other words, those places are within the aura of the missile base (its zone of influence).

The cartographer could have made the message more dramatic by adding the names of some cities to this map. Look at an atlas or wall map in order to find the locations of the cities listed below. Write the correct name next to each dot on the map.

Circle the names of the five cities that would be vulnerable to attack by this missile.

Beijing      Hiroshima      Hong Kong      Osaka      Seoul  
Shanghai      Shenyang      Taipei      Tokyo      Vladivostok

Teacher's Notes: **Who Is Within Range of a Missile? (Spatial Aura)**

**Overview:** A spatial aura is a zone of influence around something. This concept has many uses in applied geography.

Students identify cities that are within range of a missile that can go about 700 miles. As an extension, they can explore consequences of countries having some cities within range and some beyond.

Grade: 6-10

Related Discipline: History

GLCEs: 6G421, 6G441

Time: 20-40 minutes

**Preparation:** Copy the worksheet.

**Setup:** A few months ago, North Korea tested a missile that could be fired at a target about 700 miles away and carry a chemical or nuclear warhead. (Note: This activity is based on the Taepodong II missile which was tested in 2006-12 – it is a multi-stage missile with a payload of about 500 pounds, and may have been intended as a satellite launch vehicle. Nevertheless, it was interpreted as a step forward on a path to ICBM capability – the ability to launch a nuclear bomb to another continent.)

We can use a map or globe to try to identify cities that might be within range of this missile if it succeeds. That list of cities, in turn, can tell us what countries are likely to be concerned.

**Subordinate Objectives:** One “spinoff” of this activity is simply becoming familiar with the locations and names of cities in East Asia, by a means that is more interesting than simply getting a list and a map to memorize.

**Procedure:** The worksheet is self-explanatory.

This activity can be done as an individual worksheet, small-group activity, whole-class discussion (with or without a projector), or take-home project. Middle-school students with access to an atlas, physical-political map, or internet site should be able to do the worksheet in about ten minutes. The result is raw material for a policy discussion that could take minutes or weeks (see Extension below).

**Answers:** Within range: Beijing and Shenyang, China, but not Shanghai or Hong Kong; Seoul, South Korea; Hiroshima and Osaka, Japan, but not Tokyo; Vladivostok, Russia

**Debrief:** One reason that it has proved hard to come up with a coherent policy toward North Korea is that the only clear loser in the arms race is South Korea. China, Japan, and Russia all have some vulnerable cities and many that are not. As a result, these countries have a kind of schizophrenic policy toward North Korea and its military ambitions.

This, however, is changing (see Extension).

**Vocabulary:** missile ICBM warhead range payload aura zone of influence

**Extension:** Have students research the current capability of North Korea – the kind of topic that a Google search does well, as long as we ignore the more fringe sites.

Explore the geopolitics of confrontation over the missile tests. This can be a DBQ question, or a role-play activity with different groups doing research on the positions of different countries or interest groups.

Explore other uses of the idea of spatial aura. For example, consider the situation of property owners who live within the aura of a large airport. The government now offers assistance in soundproofing their houses or moving away if they decide they no longer want to live with the noise. Groundwater contamination is another example: we are increasingly able to predict the movement of pollutants away from a source (and into the area that could be described as the zone of influence or aura of the factory or other pollution source).