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NCTA- Japan  
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## **Japan: Seismic Activity and its Affects**

### **Curriculum Alignment:**

State of Ohio Academic Standards:

#### **Geography**

*Human and Environmental Interaction*

#5. Describe the ways human settlements and activities are influenced by environmental factors and processes in different places and regions including:

F. Seismic Activity

Mason City Schools Course of Study:

#### **Asia**

*Big Idea:*

Students will understand how the environment affects human activity.

*Essential Question*

How does seismic activity and the Ring of Fire affect life of the inhabitants?

### **Intended Audience:**

Sixth grade reading and social studies students

### **Materials Needed:**

Two non-fiction articles (attached)

Handout to focus instruction/set purpose of lesson (attached)

Pencil

Highlighter (optional)

### **Time Required (suggested):**

If reading independently and going over as a class= 60 minutes

If using "reading" instruction to teach reading non-fiction strategies as well as Asia content (suggested= 90 minutes)

**Background knowledge (Units By Design setup):**

This lesson is not intended to be taught in isolation. It is intended to be integrated within an Asia unit encompassing other skills, knowledge, essential questions, and big ideas.

It is also important to understand that this lesson is part of a "Units By Design" plan. Within this plan, students construct "skills" and "knowledge" and are then guided to synthesizing that material in order to formulate an answer to an "essential question." Furthermore, students then take that level of understanding to generate a "big idea" that is a transferable thought (a thought that can be applied to other regions/situations).

This lesson is best if taught in an integrated classroom. Students should not only participate in this lesson for the acquisition of social studies content, but also, to learn active, non-fiction reading strategies. Furthermore, learn to use the two together to think critically at a higher level of blooms Taxonomy.

In order to make this as simplistic as possible for instruction, not only will you find the procedure listed below, but also, it is written explicitly on the hand-outs for the children to follow (to ensure they have a responsibility in their learning).

**Procedure:**

1. Set a purpose for the lesson with your students... "Today we will be doing some reading activities that will not only help us become better non-fiction readers, but also, will help us to understand how seismic activity affects the life of Japanese inhabitants."
2. Review with students any prior knowledge needed in order to fully comprehend the lesson. Depending on the class, some of those may be...
  - Social Studies Content:*
    - a. What is seismic activity?
    - b. Why would it be prevalent in Japan?
    - c. Where is Japan located?
  - Reading Content:*
    - a. What is non-fiction?
    - b. What should every reader do before beginning to read? (Set a purpose)
    - c. What is our purpose for reading today? How do we know?
3. Step one:
  - a. Students should preview the questions being asked that relate the first article. This will help them to be active readers and focus on the important material.

- b. Read the article "Japan Fearful of Re-energized Ring of Fire" from CNN.com 1995.
  - c. Stop periodically to model critical thinking of the article and "think aloud" using reading strategies. Highlight text as needed. Scribe margin notes to take out main points.
  - d. After reading, allow students to independently answer the questions
  - e. Go over the answers to the questions, clearing up misconceptions
4. Step Two:
- a. Students should preview the questions being asked that relate the first article. This will help them to be active readers and focus on the important material.
  - b. Read the second article "Preparing for the Big One" from BBC News (written eight years later in 2003).
  - c. Stop periodically to model critical thinking of the article and "think aloud" using reading strategies. Highlight text as needed. Scribe margin notes to take out main points.
  - d. After reading, allow students to independently answer the questions
  - e. Go over the answers to the questions, clearing up misconceptions
5. Step Three:
- a. After reading both articles, now challenge students to draw the following conclusions based upon the knowledge constructed:

*How is the environment affecting the way people are living their lives?*

*What have Japanese inhabitants learned from the previous events?*

- b. Generate a class discussion that evaluates how well Japanese using evidence from the reading to support judgments.
- c. Set closure to the lesson by revisiting the essential question and big idea.
- d. Have students write an answer to the essential question as an "exit slip" out of the room.

### **Assessment:**

*Informal Assessment:* Observation of understanding as teacher walks around helping students answer questions, and throughout the reading.

*Formal:* Correct answers to questions (Reading comprehension. Development of the big idea will be assessed through the exit slips.

# Japan: Seismic Activity & Affects

Look at the following objectives to focus your learning:  
(this is what you should be gearing yourself to learn)

**Big Idea:** Students will understand how the environment affects settlement and human activity.

**Essential Question:** How does seismic activity in the Ring of Fire affect life of the inhabitants?

**Step 1:** Read the article "Japan Fearful of Re-Energized 'Ring of Fire'" from 1995.

Answer the following questions:

1. "Japan has learned to live with the continued threat of earthquakes. It's had to given its location on the so-called Ring of Fire." This statement from the text allows readers to concluded:
  - a. Earthquakes are not common in Japan
  - b. Citizens are not prepared for Earthquakes
  - c. The location of Japan is prone to Earthquakes
  
2. Why are citizens of Japan more frightened then ever?
  - a. Because there have been five big earthquakes with a magnitude of 7.5 in 3 years
  - b. Because 140,000 lives were taken in the Kanto quake
  - c. Because Tokyo has been the site of 5,000 recorded earthquakes
  - d. Because they live in the Ring of Fire
  
3. "Tokyo is a congested concrete jungle of elevated roadways, tall buildings adorn with countless overhanging sign, and underground railroads. A major quake could turn those fears into reality." This sentence suggests:
  - a. Tokyo is prepared for an earthquake
  - b. Tokyo is built very strongly to resist earthquakes
  - c. Tokyo is very well designed
  - d. Tokyo is not built in a fashion in which it could withstand an earthquake
  
4. What is the tone presented in this 1995 article?
  - a. Worried
  - b. Hopeless
  - c. Hopeful
  - d. Confident

5. Overall, in a well written sentence, tell how the Ring of Fire affects the life of Japan's inhabitants?

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**Step 2: Read the article "Preparing for the 'Big One'" from 2003.**

Answer the following questions:

1. "Last month's earthquake in northern Japan was one of the biggest anywhere in the world in recent years. Yet, the fact that only one person died is perhaps a tribute to how well prepared Japanese people are for dealing with the earthquakes which frequently hit their country." This statement allows the reader to conclude that in 2003:
  - a. Japan is prepared for an earthquake
  - b. Japan has learned how to prevent earthquakes from occurring
  - c. Tokyo is not built in a fashion in which it could withstand an earthquake
  
2. Find two pieces of evidence from the text that allow the reader to conclude your answer to question 1.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  
3. What role do children play in Japan's prevention planning?
  - a. They are involved with the mock earthquake practice
  - b. They are explicitly told to make sure doors are open, that they turn off the gas, and cower under a table if a quake happens
  - c. They can take a guided tour at the Life Safety Learning Centre.
  - d. All of the above
  
4. How is the job of Hiroshi Kodaira important to the prevention planning?
  - a. He makes people practice responding to earthquakes
  - b. He forecasts earthquakes
  - c. He evaluates buildings to see if they can withstand an earthquake
  
5. Who is Hiroshi contracted by?
  - a. Toshiki Shiraishi
  - b. The government
  - c. An architectural firm

6. The answer that Hiroshi is giving to fellow Japanese residence is:
- a. To demolish wooden homes
  - b. To strengthen homes without disfiguring the architecture
  - c. To move to more stable places
  - d. To evacuate immediately when trembling begins

Step 3: After reading both, think about the answers to the following questions. Use your own thinking, applying evidence from the text to support.

1. The tone of the second article (written in 2003) seems to use a more \_\_\_\_\_ tone.
- a. pessimistic
  - b. Fearful
  - c. Confident

2. What allows the reader to conclude the tone change?

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3. How is the environment affecting human activity (the way people live their lives)?

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4. What has the government done since 1995 article that has helped reassure the citizens of Japan?

- a. Prepared for the quakes by educating the people and advising stronger building
- b. Prevented the earthquakes from coming
- c. Adequately predicted when the earthquakes are coming
- d. Nothing, people have just become more educated

5. Do the citizens seem prepared? Why or why not

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## Japan fearful of re-energized "Ring of Fire"

October 20, 1995



Web posted at: 8:40 p.m. EDT (0040 GMT)

From Tokyo Bureau Chief John Lewis

**Lewis** TOKYO (CNN) -- The Pacific's "Ring of Fire" has apparently started heating up lately. Earthquakes and volcanic eruptions are taking place in many of the countries on the Pacific Rim. This has become increasingly evident in Japan over the past few weeks.

Japan has learned to live with the continued threat of earthquakes. It's had to, given its location on the so-called Pacific Rim of Fire, where most of the world's active volcanoes are located. But when bulletins cross TV screens nationwide, their effect is no less chilling.

This fear of the earth shaking beneath their feet is well-founded. "Five big earthquakes with a magnitude more than 7.5 took place successively within only three years. It's quite an unusual situation. The Japanese islands are now entering into a very unusual active period of seismic activity," said Prof. Megumi Mizoue of Tokyo University.

Only 10 months ago the major port city of Kobe was all but flattened by a massive quake. That one claimed over 5,000 lives and shook the already unsteady Japanese economy to its roots.

Over the past month, the Izu Peninsula area, southwest of Tokyo, has been the site of over 10,000 recorded earthquakes.

Last week, a volcano on the southwestern-most main island of Kyushu finally woke up after over 250 years of slumber. Upon awakening it spewed ash, rock, lava -- and concern. This past week, the small southern island of Amami-Oshima has grabbed attention as the site of numerous off-shore quakes, some with magnitude readings of 6 and over, accompanied by the fears of resulting tsunami.

Does all of this seismic activity precede the long predicted, some say long-overdue, second great Kanto earthquake? The first, in 1923 flattened the Japanese capital, claiming over 140,000 lives.

The experts are divided, but the non-experts are fearful.

"Earthquakes can happen anywhere. Since there was so much damage in Kobe earlier this year, there would be even more in Tokyo. That's what I'm afraid of."



"If there is a big earthquake here, there will be nothing left. I will probably die."



Tokyo is a congested concrete jungle of elevated roadways, tall buildings adorned with countless overhanging signs, and underground railways. A major quake here could turn those fears into reality.

## Preparing for 'the Big One'

By Jonathan Head  
BBC correspondent in Tokyo

**Last month's earthquake in northern Japan was one of the biggest anywhere in the world in recent years.**

Yet the fact that only one person died is perhaps a tribute to how well prepared Japanese people are for dealing with the earthquakes which frequently hit their country.

New buildings are designed to withstand the strongest tremors. The army and emergency services go through elaborate drills every year.

But experts predict that a massive earthquake will strike the capital Tokyo some time in the near future, and that - despite the best preparations - hundreds of thousands of buildings may collapse, and several thousand people could die.

Last month in Tokyo, there was a scene of utter chaos. Rescue teams rushed in all directions, firing up their chainsaws. In front of them lay cars crushed under piles of rubble, and crumpled houses. Helicopters hovered over badly cracked buildings.

The teams worked at speed, sawing holes in the collapsed walls, leaping in and bringing out casualties. Some seemed badly injured, some were unconscious.

But the injuries were not real.

This was Japan's National Disaster Prevention day, held every year to mark the great Kanto earthquake of 1923, which flattened Tokyo and killed more than 100,000 of its inhabitants.

**The next big earthquake in the Kanto area is very imminent**  
Keiji Doi, Tokyo University's Earthquake Research Institute

This year a million people took part in the exercise. The reason they take it so seriously is that earthquakes occur all the time in this geologically unstable country - and the capital city is well overdue for a big one.

The problem is, according to Professor Keiji Doi from Tokyo University's Earthquake Research Institute, there's no way of knowing when it will happen.

"The next big earthquake in the Kanto area is very imminent according to our history of these earthquakes. But we can't tell the exact day or time. It may occur tomorrow, or next week or next month or next year, but we can't say the exact time or date," he said.



So the only thing the inhabitants of Tokyo can do is prepare. And they do.

Every day Kuroda Masayuki from the city's Fire Department gives guided tours of its Life Safety Learning Centre to groups of school children.

He explains the city's unlucky location - right above the point where three great continental plates meet and grind against each other. Then they get to feel what a major earthquake is really like on the centre's earthquake simulator.

It is a milder version of the great Kobe earthquake of 1995. All the same, the children are thrown around the mocked-up kitchen. Furniture - fortunately made of foam - tumbles on top of them.

They are supposed to make sure a door is open, and turn off the gas, but all they can do is cower under the table, with cushions on their heads. Even on a simulator it is an unnerving sensation.

### **Health checks**

Practising for the Big One is not the only preparation Tokyo's people are making. They're also taking a long, hard look at where they live.

The job of Hiroshi Kodaira, a structural engineer, is to assess how buildings could withstand a major earthquake.

One of the people he has been helping is Toshiki Shiraishi, the owner of a beautiful old wooden house - a rarity in Tokyo these days.

The verdict was what Toshiki had feared - that without significant re-enforcement, his house could collapse.

"I've been worried about what would happen in the event of an earthquake for some time. Only recently I read in the newspaper that half of all the people who will die will be crushed under buildings. This is something I had to do," Toshiki said.

Hiroshi checked the outside walls of the house as well.

He has equipment which can tell how solid the walls are and how much moisture they contain - a complete breakdown of a building's health.

He is contracted by the local government to offer this health check to all the residents of this area.

Using a wooden model, Hiroshi explained how the house could be strengthened without disfiguring its elegant architecture.

It will not be cheap.

Fortunately Toshiki can afford the work. Thousands of other people with old houses in the city cannot. They can only hope that when the Big One does finally strike, their homes will somehow hold up.