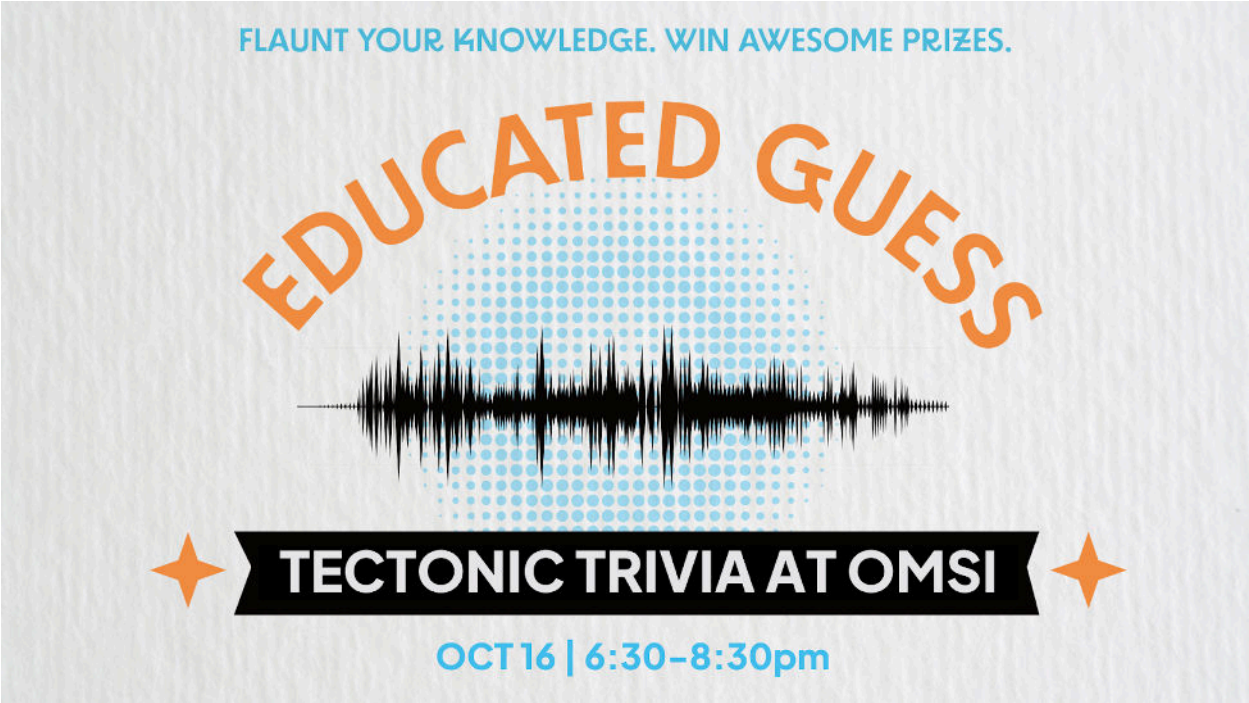
Educated Guess:

Tectonic Trivia

October, 2024



Prepared by

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With support from USGS ShakeAlert and the ShakeAlert Epicenter Partnership

Overview

This report describes a public event that took place at OMSI on Oct 16, 2024 as part of the ***Great ShakeOut***.The purpose of this report is to summarize details related to planning, promoting, and facilitating ***Educated Guess: Tectonic Trivia***, so that OMSI and other free-choice learning environments planning similar experiences in the future can build on what has already been learned and developed.

Rationale

The Great ShakeOut is a global earthquake preparedness event that occurs the third Thursday of every October. Individuals and organizations all over the world participate by practicing earthquake protective actions (e.g. Drop, Cover, and Hold On (DCHO)) and engaging in other activities to promote earthquake resilience. Individuals and organizations choose to participate on the day of the Great ShakeOut and/or near the date.

OMSI participates in the Great ShakeOut annually. Each year, as a leader of the ShakeAlert Epicenter Partnership, we attempt to build on activities that were successful in the past, while also trying new approaches for engaging the public in earthquake learning.

In 2024, we were interested in integrating earthquake content into an existing program format to take advantage of cross-departmental collaboration and to reach additional participants. OMSI staff chose the program format "Educated Guess," a semi-regular trivia night organized by OMSI's Events Team, to be part of the suite of activities for the Great ShakeOut 2024. OMSI's Epicenter and Events teams thought an earthquake-themed trivia night would attract and include a set of learners not typically served by daytime museum offerings, and would provide a fun, social context for learners to develop knowledge and interest around earthquake preparedness, as well as offer an opportunity to practice DCHO.

Planning and Promotion

Planning for this event required collaboration between OMSI's Epicenter Team and Events Team, with additional support from Marketing, Facilities, and other departments.

- **Trivia Content Development** was led by the Epicenter Team. The content was designed to highlight key messages about earthquake science and safety, while also including some pop culture references to keep it fun. We knew that participants were likely to have a range of backgrounds and experiences relative to

earthquakes, and we wanted to make sure that both seismology buffs and novices would have opportunities to flaunt their knowledge. Additionally, because the event coincided with the Great ShakeOut, we wanted to have at least one opportunity for people to practice earthquake protective actions; to that end, the "Physical Challenge" round included a simulated earthquake alert, followed by earthquake sound effects, during which trivia teams earned points for quickly and effectively practicing Drop, Cover, and Hold On or a modified protective action. See Appendix A for full list of trivia questions, answers, and scoring criteria.

- **Event Logistics** were led by the Events team, and included:
    - Reserving an appropriate event space
    - Coordinating with OMSI Facilities, IT, and Food Service for set-up needs
    - Managing ticket sales ($12pp with 15% off for OMSI members.)
    - Purchasing and distributing prizes
- **Promotion** was led by the Marketing team, and included:
    - A dedicated event page on the OMSI website
    - Social media posts on Instagram and X (see Appendix B). Partners such as USGS ShakeAlert amplified these posts on their own channels.
    - Posts on OMSI's digital reader boards ("Yodecks"), which are on display throughout the museum
    - Additionally, the Epicenter team sent individualized invites to specific individuals and community partners we thought would be interested in attending.

An OMSI staff member from the Epicenter team facilitates.

Trivia content included a mix of science, preparedness, and pop culture content.

Outcomes and Lessons Learned

The total number of tickets sold for the event was 32; ultimately 30 people attended, representing 7 different teams. Thirty proved to be a sufficient number of people, both to cover the cost of hosting the event, and to generate sufficient competitive energy to make the event fun. Future trivia events at OMSI could comfortably accommodate up to 100 people.

Though we did not formally collect participant demographics, from casually conversing with participants, we noted that most were *not* professionally affiliated with earthquake science or preparedness, though many had a personal interest in the topic. Though the event was open to all ages, all attendees were adults.

Teams participate in the short answer trivia round

To better understand participants' motivations for attending (and thereby inform our efforts to plan and promote future, similar events), we distributed a one-item survey, asking guests: "What motivated you to attend this event tonight?" Participants were asked to choose their top two reasons out of the following options: "I wanted to hang out with family/friends;" "I was dragged here by someone;" "I love Trivia;" "I'm interested in earthquakes (indicate if your interest is personal or professional);" "I'm interested in OMSI events in general", and an option to provide their own response if none of the above applied.

The survey results (Figure 1) indicate that while attendees were primarily motivated to participate for social reasons, such as spending time with family and friends (n=24), a significant portion also showed interest in earthquakes as a topic per se (n=16, of which 7 respondents indicated personal interest). This finding is relevant, as it suggests that to encourage people to engage with earthquake learning, incorporating fun isn't just enjoyable: it's strategic. These results also suggest that events centered on scientific topics can attract people beyond just those seeking social interaction; there seems to be a distinct public interest in learning about these topics, particularly in informal and engaging settings like trivia nights.

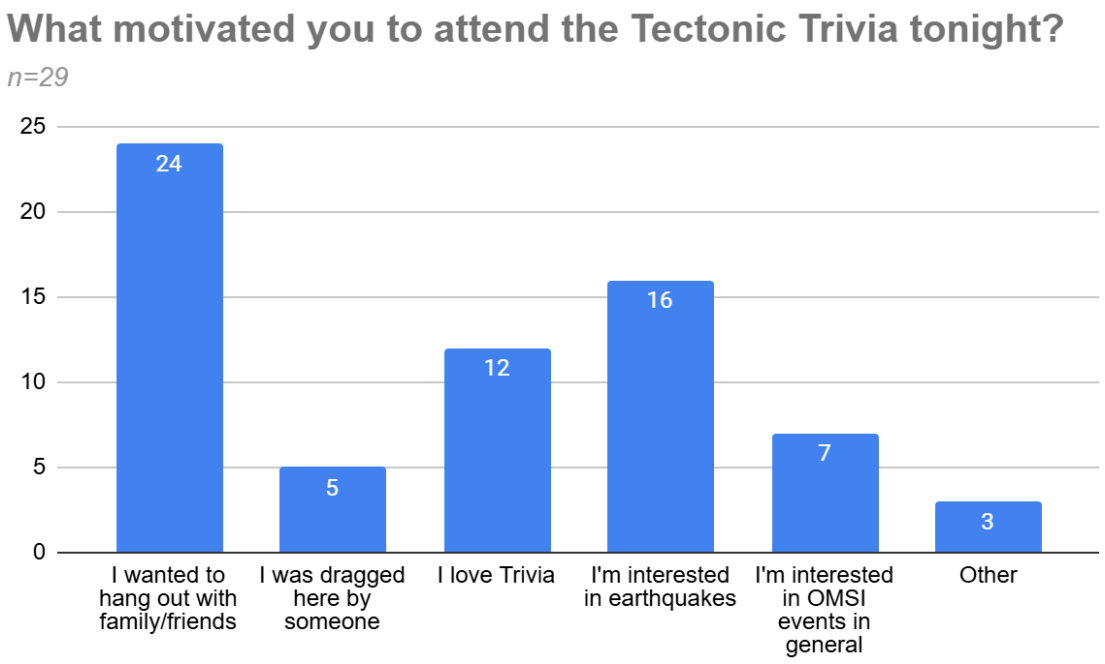


Figure 1. ***Survey results***

In terms of the trivia questions, the level of difficulty and breadth of content seemed well received. All teams earned at least 50% of the available points, with the winning team earning about 70% of the available points. As facilitators, we were interested to see how people responded to the "Physical Challenge" which included the earthquake alert and drill. We did not prompt participants in advance that there might be a drill, nor that they would be scored based on their response. In fact, the Physical Challenge round began with a "red herring," where teams were told they needed to complete a tectonic puzzle map as quickly as possible. After 2–3 minutes of teams working on their maps, we initiated the earthquake alert and sound effects. Most teams quickly sprung into action. Teams were scored based on how many of their team members took a protective action (including adaptive actions) and how long it took them. This physical, interactive challenge provided a welcome change of pace to the standard multiple-choice and short-answer trivia fare and it also directly connected to the practical learning goals of ShakeOut. The notion of physical was not exclusive in that all people, regardless of age or abilities, can participate in some protective actions.

In summary, we found the following strategies were successful in promoting engagement:

- Include a variety of trivia content, ranging in level of difficulty, connection to the theme, and mode of response

- Include a protective action challenge
- Keep it fun: include pop culture content; encourage participants to form teams and develop a team identity; encourage friendly competition between teams; give out prizes for winning teams

Going forward, we would also recommend small changes to future trivia events:

- Include more trivia questions overall (either more questions per segment or more segments). Teams got through the prepared questions faster than expected.
- Have prizes that directly relate to the topic. We provided generic science prizes from the OMSI Science Store, but in the future some earthquake-themed prizes could be fun and reinforce the theme.
- Additional promotion could also yield more attendees. In the future, we could post on sites like Willamette Week events and other local guides.

Appendices

Appendix A – Trivia Content

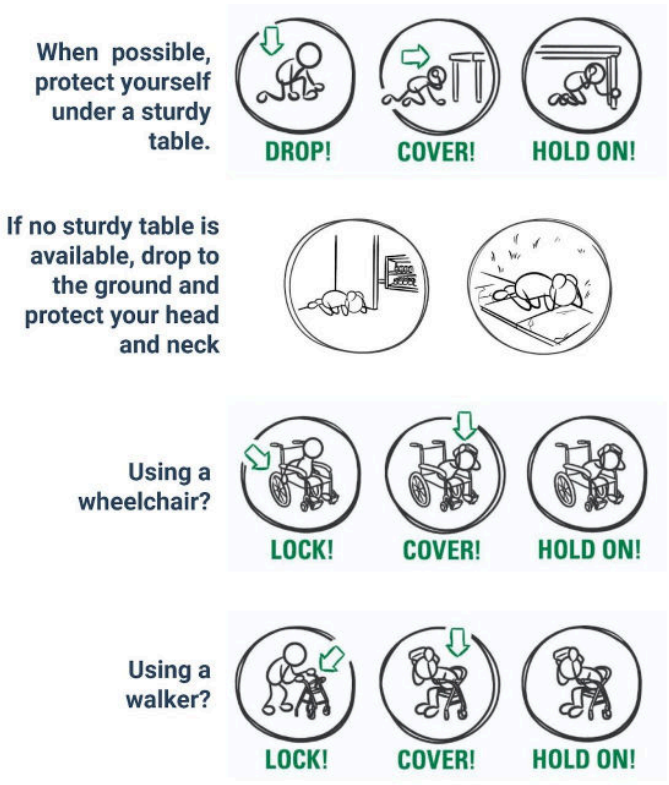
Round 1 - Multiple Choice
1 pt per question; 10 possible.

Question		Correct answer
1	Which US state has the most earthquakes? a. California b. Oregon c. Alaska d. Hawaii	c. Alaska
2	What character causes earthquakes, according to Norse mythology? a. Thor b. Odin c. Hela d. Loki	d. Loki
3	The Cascadia Subduction Zone forms at the junction between two tectonic plates. What are their names? (Pick two). a. Oregon plate b. North American plate c. Pacific plate d. Juan de Fuca plate	b. North American and d. Juan de Fuca Score point only if they get both.
4	Native American oral history tells of a devastating earthquake and tsunami that occurred in Cascadia generations ago. Through this and other evidence, we know this mega-quake last occurred in the year: a. 54 BCE b. 1096 CE c. 1492 CE d. 1700 CE	e. 1700 CE
5	Seismologists measure the size of an earthquake using the Moment Magnitude Scale. Approximately *how much stronger* is a magnitude 8.0 earthquake compared to a magnitude 4.0 earthquake? a. 2 times	D. 1,000,000 times

	b. 400 times c. 10,000 times d. 1,000,000 times	
6	According to geologists, what is the likelihood of a major Cascadia subduction zone earthquake (magnitude 7.0 or greater) occurring in the next 50 years? a. 12% b. 37% c. 55% d. 92%	b. 37%
7	What kind of animals have been known to predict earthquakes? a. Rats b. Elephants c. Axolotls d. None of the above	d. None of the above
8	ShakeAlert is the Earthquake Early Warning System for OR, WA, and CA. It can't predict earthquakes, but can give early notice about an earthquake that is just starting. How much early notice can ShakeAlert typically provide? a. 20 seconds or less b. 3–5 minutes c. 30–40 minutes d. 1–2 hours	a. 20 seconds or less
9	Which of the following Portland bridges is expected to withstand a magnitude 8 or higher earthquake? a. Sellwood b. Ross Island c. Hawthorne d. Broadway	a. Sellwood
10	If you feel shaking or receive a ShakeAlert-powered early warning, emergency officials recommend you: a. Run outside b. Stand in a doorway c. Get under a sturdy table d. Call an Uber	c. Get under a sturdy table

Round 2 – Physical Challenge
15 points possible

Participants are first given a tectonic jigsaw puzzle as a "red herring." 2–3 minutes into the challenge, an earthquake alert sounds and displays, followed by earthquake sound effects. Teams are scored based on whether and how quickly team members take a protective action, including any of the following:



Scoring is as follows:

Condition	Points awarded
First table to have every group member in a safe position	5
Every group member is in a safe position	10
Some, but not all group members in a safe position	5

Round 3 – Short Answer

2 pts per question; 16 possible.

Question		Correct answer
1	If you feel shaking or get an earthquake alert, DCHO! What does DCHO stand for?	Drop, cover, [and] hold on.
2	Long-time OMSI visitors may remember the old ShakeHouse, which played Carole King's song, *I Feel the Earth Move*. Listen to the following clip and fill in the next line. *I feel the earth move under my feet I feel* _____	*the sky tumbling down*
3	Name one local (Oregon or SW Washington) resource for emergency preparedness.	Any valid response acceptable
4	Name 3 essentials that you should stock in your emergency preparedness kit, to help you survive after a major earthquake.	Any 3 valid responses, for example: Water, food, radio, flashlight, first aid kit, medications, shelter, copies of important documents, etc.
5	If an earthquake occurs while you are sleeping in bed, what's the safest way to protect yourself?	Stay in bed, turn on your stomach, and cover your head and neck with a pillow.
6	The world's largest recorded earthquake was a magnitude 9.5 and occurred in 1960. Where did it occur?	Valdivia, Chile. (Just Chile is also acceptable).
7	At a 2011 Seattle Seahawks game, a running back broke nine tackles, rushed 67 yards, and scored a touchdown to	Marshawn Lynch

	win the game. The crowd response was so loud, it was registered as a magnitude 2.0 by the Pacific Northwest Seismic Network. What was the name of the running back responsible for this "Beast Quake?"	
8	California's 1989 Loma Prieta earthquake famously interrupted the World Series game between which two teams?	The Oakland As and the San Francisco Giants.

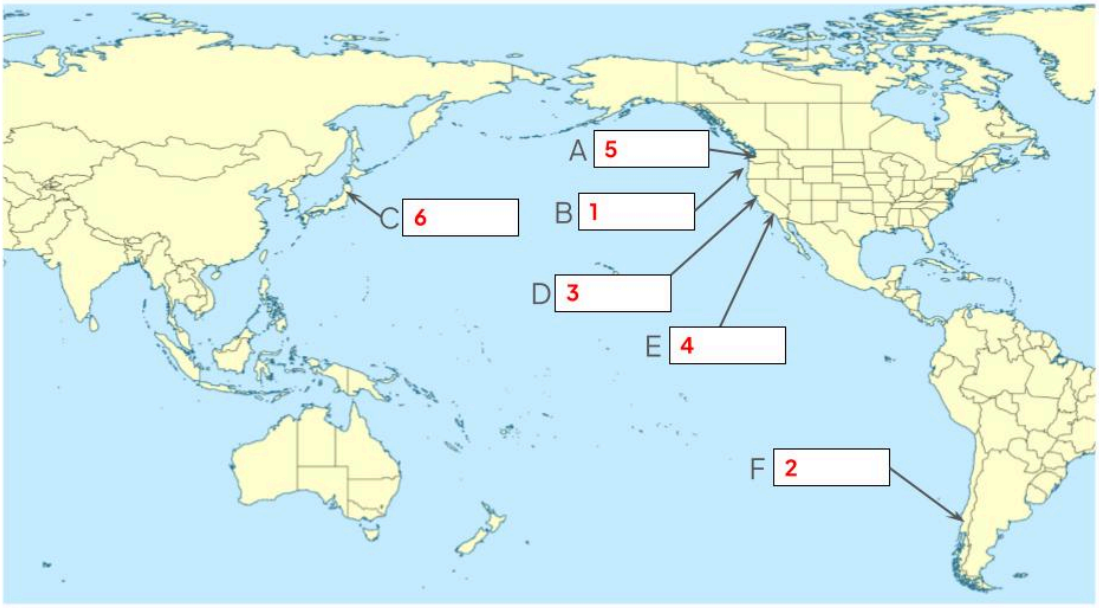
Round 4 – Table Round

2 pts per question; 16 possible.

Match each actor with their natural disaster movie:

1. Helen Hunt	__2_ Dante's Peak
2. Pierce Brosnan	__4_ The Day After Tomorrow
3. Tara Reid	__7_ The Impossible
4. Jake Gyllenhaal	__6_ Armageddon
5. Charleton Heston	_10_ Don't Look Up
6. Bruce Willis	__8_ Escape From LA
7. Naomi Watts	__9_ San Andreas
8. Kurt Russel	__5_ Earthquake!
9. Dwayne Johnson	__1_ Twister
10. Jennifer Lawrence	__3_ Sharknado

Ring of Fire Match-Up **ANSWERS**

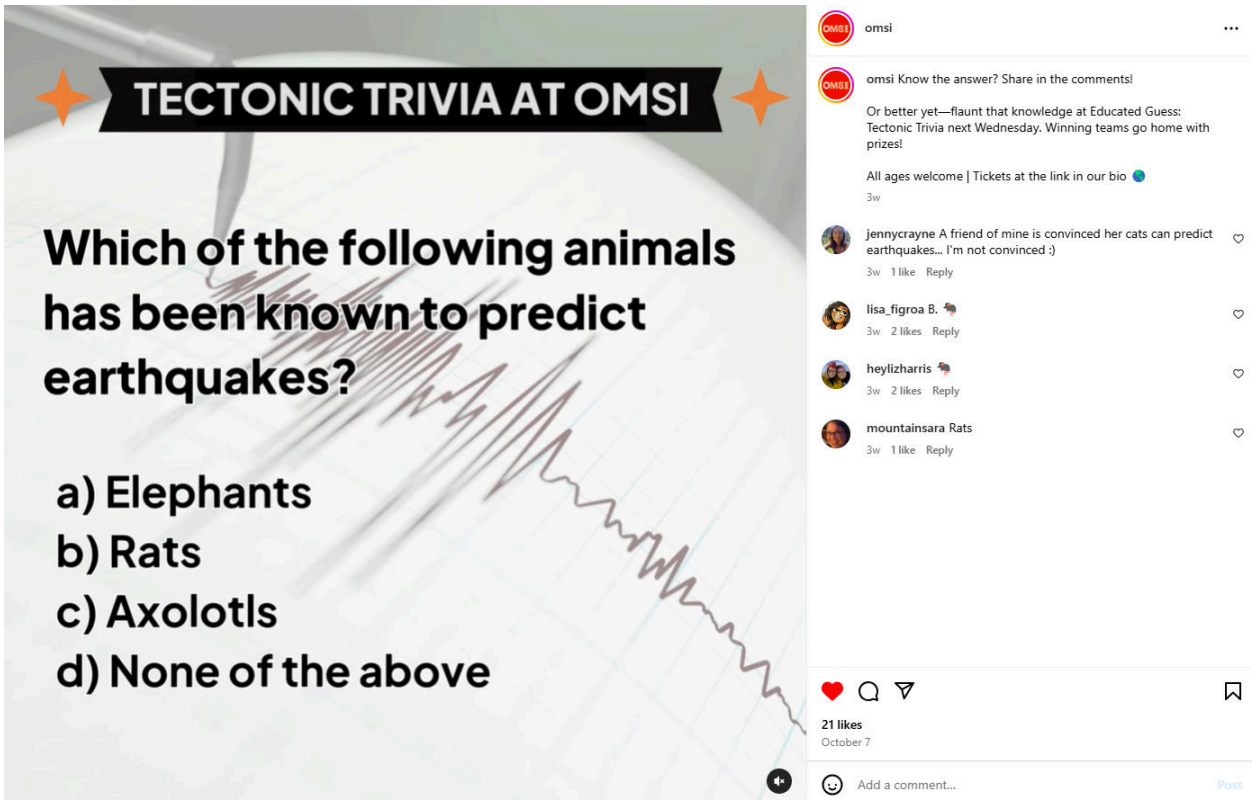


Match the following historic earthquakes to their epicenter on the map above.

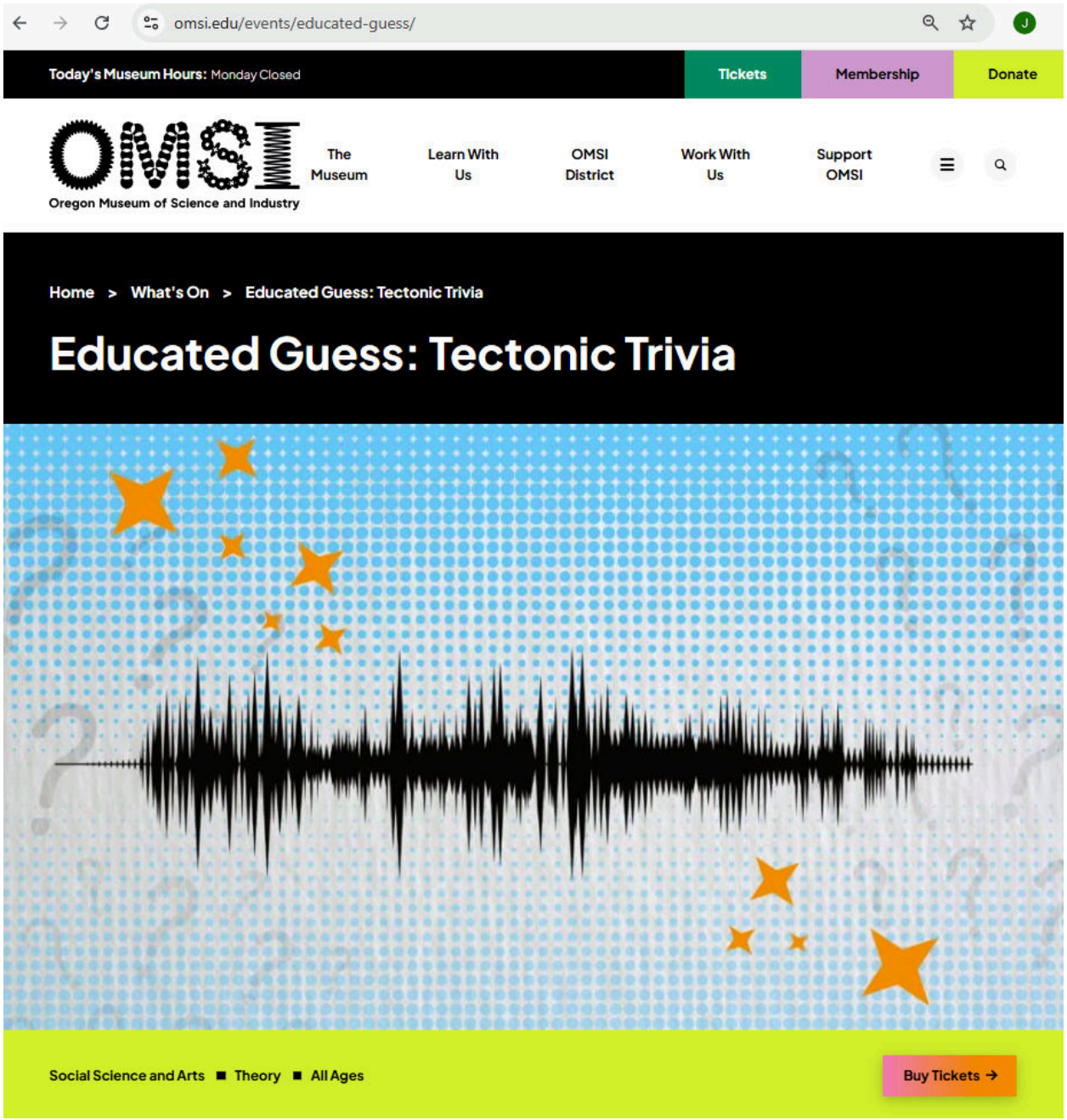
1. 1700, M9.0
2. 1960, M9.5
3. 1906, M7.9
4. 1994, M6.7
5. 2001, M6.8
6. 2011, M9.0

Appendix B – Promotional Materials

Sample Instagram post



Webpage content


omsi.edu/events/educated-guess/
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Home > What's On > Educated Guess: Tectonic Trivia
Educated Guess: Tectonic Trivia
Social Science and Arts ■ Theory ■ All Ages
Buy Tickets →

Earthquake-Themed Trivia at OMSI

Oct 16 , 6:30-8:30PM | Doors @ 6PM

Let's get shakin' with Educated Guess: Tectonic Trivia, at OMSI's Theory restaurant. In honor of ShakeOut week, come test your knowledge of earthquake preparedness, pop culture, and plate tectonics—and maybe learn something new! Grab some friends and build a team of up to 6 people. Prizes available for the top 3 scoring teams. Educated Guess runs from 6:30-8:30PM, doors open at 6PM. Admission is $10 per person. Food and drink will be available for purchase.

Our theme for this event is **Tectonic Science!**

Tickets: $10 per person (15% off for OMSI members.)

Questions? Email **events@omsi.edu**
Ticketing questions call **503.797.4000 x0**

Venue Information

Theory
The Museum
1945 SE Water Ave.
Portland, OR 97214

Accessibility

Wheelchair Accessible

Frequently Asked Questions

Will food be available for purchase? −

Yes, OMSI's restaurant, Theory will be open. The grill will be open until 7pm. The bar will be open until 7:30pm to guests that are 21+. No outside food or drink is allowed.

Is this event all ages? −

Yes, we welcome all ages to our trivia nights.