Welcome to the San Diego Model Railroad Museum

Name_____

Directions: Use this self-guiding tour to lean about the San Diego Model Railroad Museum (SDMRM). While the tour is numbered, you do not have to follow it in a specific order.

In the SDMRM you can see four different model train layouts that represent four different scales. The **scale** or **scale factor** of a train tells you how much smaller the train is than its real-life counterpart. Scales are often shown as ratios. Let's go to the Centennial Railway Garden to learn more.

1

The Centennial Railway Garden was built in 2015 to celebrate Balboa Park's 100th or centennial anniversary! It is a G-scale model train layout. The **G-scale factor is 1:32**. That means that the trains and everything else on this layout are 32 times smaller than their real-life counterparts. One inch on a G-scale train equals 32 inches in real life. G-scale is the largest model train scale.

Centennial Railway Garden

Question: If a G-scale train is exactly 4 inches long, what would you have to do to figure out its size in real-life? What would its size be in real-life?

N-Scale Truss Bridge

2

Next stop is the **Pacific Desert Layout**. This layout is in N-scale. The **N-scale factor is 1:160**. Do you notice how much smaller N-scale trains are from the G-scale trains in the Garden Railway?

This layout features a **truss bridge**. A truss bridge is made out of a series of connecting triangles. Triangles are very strong shapes; this is why civil engineers often use them in the construction of railroad bridges.

Question: Triangles are naturally stronger than squares. Why do you think that is?

3

Onto the **Bakersfield-Mojave** line, the largest layout in the SDMRM, spanning two floors! This model layout is in HO-scale. The **HO-scale factor is 1:87**. The Bakersfield-Mojave line is an exact replica of the real railroad as it was in the 1950s. Look carefully at the people, the cars and buildings. Can you tell they are from another era?

Tehachapi Loop

On the second level, you will find the **Tehachapi Loop**. Constructing a railroad through a desert is a complicated task, especially one that has to ascend 77 feet.

Question: Why do you think civil engineers constructed a loop instead of an inclined plane?

Goat Canyon Trestle

4

The **San Diego and Arizona Eastern Layout** is also a replica of a historic railroad, set in another era. It is in **HO-scale**. One of the best features of this layout is the **Goat Canyon Trestle**, a bridge constructed out of a series of short spans called trestles. Although it is no longer in use, it is the world's largest all-wood trestle bridge. Now, it is famous for being a challenging place to hike!

Question: How is a trestle bridge like a truss bridge?

Find It!

There is another replica of the Goat Canyon Trestle in the SDMRM. Can you find it? Here's a hint: Its scale is much smaller.

Answer here:

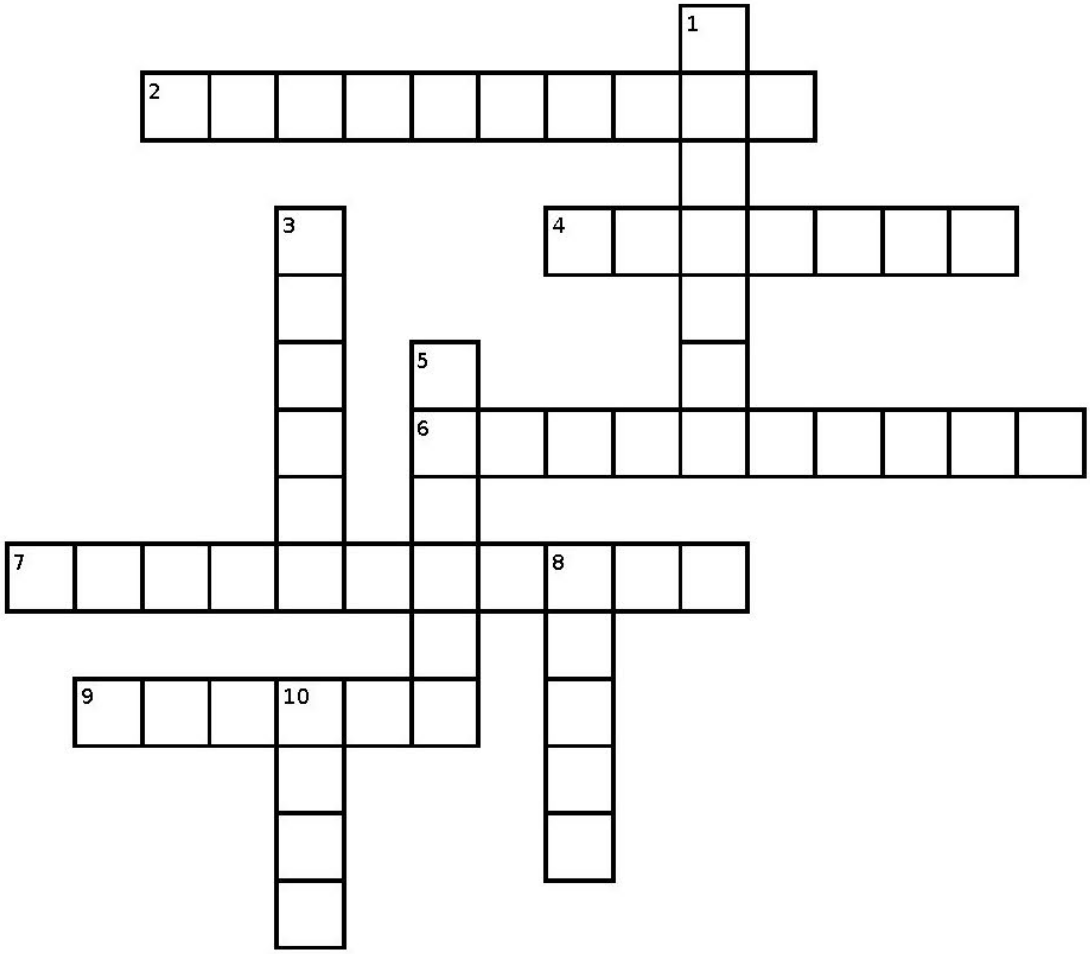
5

The **Cabrillo-Southwestern** is an O-Scale layout. The **O-scale factor is 1:48**. Remember, that means that everything on this layout is 48 times smaller than the real-life objects.

Look carefully at the layout to locate the bridge pictured here. It is an arch. Civil engineers often build railroad bridges out of arches.

O-Scale Arch

Question: The arch is a naturally strong shape. Why do you think that is?



Down:

1. a kind of bridge made out of a series of short spans

3. 1:160

5. 1:48

8. a kind of bridge made out of a series of connecting triangles

10. a strong shape in the form of a curve

Across:

2. the name of the park you are in right now

4. 1:87

6. an exact copy of something made either larger or smaller than the real thing

7. the ratio that describes the relationship between a real-life object and how much larger or smaller the scale model of it is

9. 1:32