1. Select "Balance Lab" from the top menu. Place 20 kg of bricks at 1 meter. Balance the beam with 10 kg of bricks. What is the location of 10 kg pack?

   ○ 0.25 m

   ○ 1.0 m

   ○ 1.5 m

   ● 2.0 m

   ○ 2.5 m

2. Place 20 kg pack at 0.75 m. Place 10 kg pack to balance the beam. What is the location of 10 kg pack?

   ○ 0.5 m

   ○ 0.75 m

   ● 1.5 m

   ○ 2.0 m

3. Multiply the mass of one pack by a distance from the pivot point (kg x m). What is the product? This is a measurement of a torque, or a force exerted by applying certain amount of force at a given distance from the pivot point.

   ○ 7.5

   ○ 10

   ● 15

   ○ 20

   ○ 30

4. Place 20 kg pack at 1 meter. Place 10 kg pack on the other side, also at 1 meter. Place 5 kg pack on the same side as 10 kg pack to balance the beam. What is the location of 5 kg pack?

   ○ 0.5 m

   ○ 0.75

   ○ 1.5 m

   ● 2.0 m

   ○ 2.5 m

5. Multiply the mass of objects on one side of the beam by their distance from the pivot point. What is the product?

   ○ 10

   ○ 15

○ 20

○ 30

6. Place 10 kg pack at 1.5 meter. Place two 20 kg packs on the opposite side to balance the beam. Take a screen shot of the balanced beam and put it in PowerPoint. What are the locations of 20 kg packs? _____ m and _____ m.

⊙ 0.5, 0.25

○ 0.5, 0.75

○ 0.5, 1.25

○ 1.5, 0.25

7. Multiply the mass of objects on one side by their distances from the pivot point. What is the product?

○ 5

○ 10

⊙ 15

○ 20

○ 25

8. From the menu select "People" and place a boy and a man on one side, and a girl and a woman on another side. What is the combined mass on each side? _____ kg and _____ kg.

○ 80; 90

○ 80; 100

⊙ 90; 100

○ 120; 90

9. Place a mystery object A at 1 meter. Use 10 kg brick pack to balance the beam. What is the position of 10 kg pack?

○ 0.5 m

○ 1.0 m

○ 1.5 m

⊙ 2.0 m

○ 2.5 m

10. You should have 10 kg pack at 2 meters. From this, you can figure the mass of the mystery object. 10 kg x 2 m = 20. Object A mass x 1 m = 20, so the mass has to be 20 kg. Confirm it by moving object A to a position of 1 m. Move 10 kg pack to balance the beam. What is the new position of 10 kg pack?

○ 0.5 m

○ 0.75 m

◉ 1.0 m

○ 1.5 m

○ 2.0 m

**11.** Place a mystery object B on the beam at 1 meter, and balance it with 10 kg brick pack. What is the mass of the object B?

○ 1 kg

○ 2 kg

◉ 5 kg

○ 7.5 kg

○ 10 kg

**12.** Clear the beam of objects. Place a mystery object C on the beam at 1 meter. Balance it with 10 kg brick pack. What is the location of the brick pack?

○ 0.75 m

○ 1.0 m

◉ 1.5 m

○ 2.0

○ 3.0 m

**13.** Place an object C at 1 meter, and balance it with 20 kg brick pack. What is the location of 20 kg pack?

○ 0.5 m

◉ 0.75 m

○ 1.0 m

○ 1.5 m

○

**14.** Place an object D at 1.5 meter, and balance it with 20 kg brick pack. What is the location of the pack?

○ 0.5 m

◉ 0.75 m

○ 1.0 m

○ 1.25 m

○ 1.5 m

15. Place object A at 2 meters, object B at 1.75 meters, object C at 1.5 meters, and object D at 1.25 meters. Place 20 kg brick pack on the other side at 2 meters, and another 20 kg brick pack at 1.75 meters. Now, balance the beam with two more packs, each 5 kg (so you have 2 packs of 20 kg and 2 packs of 5 kg on one side.) Place one 5 kg pack at 0.25 meter and balance the beam by placing another 5 kg pack as needed. What is the position of this last 5 kg pack?

○ 0.5 m

○ 0.75 m

○ 1.0 m

◉ 1.5 m

○ 2.0 m