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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |

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| **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 | |  |  | |

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| **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 | |

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| **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 | |