



Can you Balance?



Preparation

CLASS LEVEL	Fifth – sixth class
OBJECTIVE	<p>Content strands and strand units Energy & forces, Forces, Living things, Human life</p> <p>Through investigation the child should be enabled to (i) come to an appreciation that gravity is a force and (ii) develop a simple understanding of the structure of some of the body's major internal and external organs, SESE: Science Curriculum pages 87 and 83. In this activity children begin to appreciate how muscles and the skeleton help keep people balanced.</p> <p>Skill development Investigating and experimenting</p>
CURRICULUM LINKS	<p>SESE: Geography Natural Environments/Planet Earth in space</p> <p>SPHE Myself/Taking care of my body</p> <p>PE Dance/ ...poise, balance, control while moving and stopping Gymnastics/ movement/ balancing and counterbalancing</p>
BACKGROUND	<p>On Earth our bodies feel the effect of gravity and react so that we can balance and move. In a microgravity environment such as on the International Space Station people feel weightless.</p>
MATERIALS/EQUIPMENT	<p>Rulers and weights Metre stick (if available) Chair</p>
PREPARATION	<p>None</p>
BACKGROUND INFORMATION	<p>In order to balance when you are standing your centre of gravity should be over your feet.</p> <p>When you are sitting your centre of gravity is over the chair. To stand up, you must move it over your feet; so it is impossible to stand up if you don't lean forwards.</p> <p>When you are standing and bend forwards your centre of gravity starts to move forward too. Normally, you'd compensate by sticking your bum out behind you. But with the wall there, this is impossible, so you tip over.</p>

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Activity

SETTING THE SCENE

Look around the room. Are we all sitting comfortably? Can we stand? Can we stand easily on 1 leg? When we are sitting or standing we are balanced. We can stay in that position.

TRIGGER QUESTIONS

Do you usually fall over when you are walking? What happens when you are standing on a bus? Is it easy to balance? What do we do to keep our balance?

DEVELOPMENT OF ACTIVITY

Take a ruler. Can you get it to balance on your finger?

Start with your fingers at the opposite ends of the ruler (or metre stick). Slowly move your fingers together keeping the ruler balanced at all times. Where they meet is the balance point. It should be the same point where you balance with one finger.

SAFETY

Make space for children to fall safely.

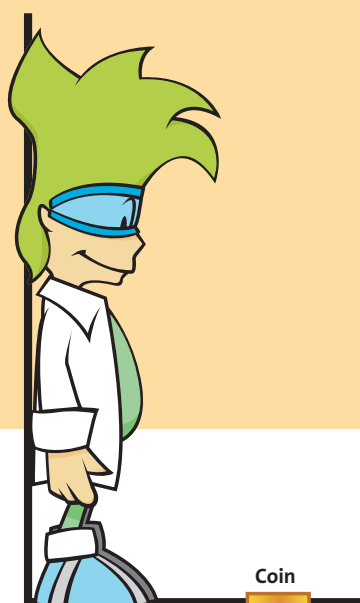
ACTIVITY

- (i) Sit straight up on a chair, with your arms down beside you. Can you get up without using your arms or leaning forwards?
- (ii) Stand with your back and heels against a wall. Drop a coin on the floor in front of you. Can you pick it up without falling over?
- (iii) Stand with your feet apart, one foot, shoulder and head all touching the wall, and raise your other leg. Dead easy- or is it?
- (iv) Stand with two feet apart with your feet, both shoulders and head against the wall. Now try to lift one leg. Can you?

These activities could be recorded using a video camera.



(i)



(ii)



(iii)



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Review

REVIEW

What happens?

To stay balanced our body has a balance point (called the centre of gravity) and it has to be over our feet. When we move our body adjusts to keep our balance point over our feet.

ASSESSMENT

Use a digital camera to record the activities. Ask the children to write narrative to explain the photographs. Another approach would be to use ICT to produce the narrative explaining the photographs.

FOLLOW-UP ACTIVITIES

The activity Gravity and Muscles at www.nsbri.org/Education/TG2_Act7.pdf is a similar approach to the question of gravity and the effect it has on the human body.

The children could research about the Solar System and how gravity changes on the different planets.

The children could be asked:

- What else would you like to find out?
- How would you find it out?

This would encourage them to design their own investigation.

