



# PLAYGROUND PHYSICS



## AT-HOME ACTIVITY

### “BET YOU CAN’T BALANCE” CHALLENGES\*

Use what you've learned about balance to compete with your friends and family with following balance challenges.

#### The Impossible Leap

1. While standing on your feet, bend over and hold your toes with your hands, keeping your knees slightly bent.
2. Jump forward in this position while holding your toes.
3. Try jumping backwards.

#### The Super Glue Chair

1. Sit in a straight-back armless chair, keeping your back against the back of the chair and your feet flat on the floor.
2. Fold your arms across your chest.
3. Keeping your feet flat and your back straight, stand up.

#### Pick-Up Trick

1. Place an object on the floor about 50 cm from a wall. Money works well. Tell the students they can keep the \$20 note if they succeed at this challenge.
2. Stand with your back against the wall, feet together, and heels against the wall.
3. Try to pick up the object on the floor without moving your feet or bending your knees.

#### Leg Lift

1. Stand against a wall with your right side facing the wall, then put your right foot and cheek against the wall (you may need to move your right arm backwards).
2. Lift your left foot off the floor.

#### Smartie Sniffer

1. Pair up family member and give each partner a smartie (or coin).
2. Partner 1: Kneel on the floor with your knees together. Crouch down with your arms in front of your knees, elbows snug against your kneecaps.
3. Partner 2: Place the Smartie at the tip of your partner's outstretched fingers.
4. Partner 1: Once the Smartie is in place, straighten up so that you are kneeling upright.
5. With your arms behind your back, lean forward to touch your nose to the Smartie.
6. Swap roles with your partner.

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## KEY QUESTIONS

### The Impossible Leap

- Why can you jump backward but not forward?
- How does your weight shift when you jump?

### The Super Glue Chair

- What part of your body is your base while you are sitting down?
- What does your body have to be able to do in order to stand up? Why?

### Pick-Up Trick

- Why can't you pick up the money without moving your feet or bending your knees?
- What does your body have to be able to do in order to pick up the money? Why?

### Leg Lift

- Why can't you move your left foot off the floor?
- What does your body have to be able to do in order to pick up your left foot? Why?

### Smartie Sniffer

- What part of your body is your base while you are kneeling?
- Where is an elementary student's centre of gravity?
- What happens to the centre of gravity when boys get older? When girls get older?
- Why will an adult man not usually be able to succeed in this activity?

### General Questions:

- What makes humans topple over?
- Why do people have different centres of gravity?

\*Balance challenges developed by Science World BC