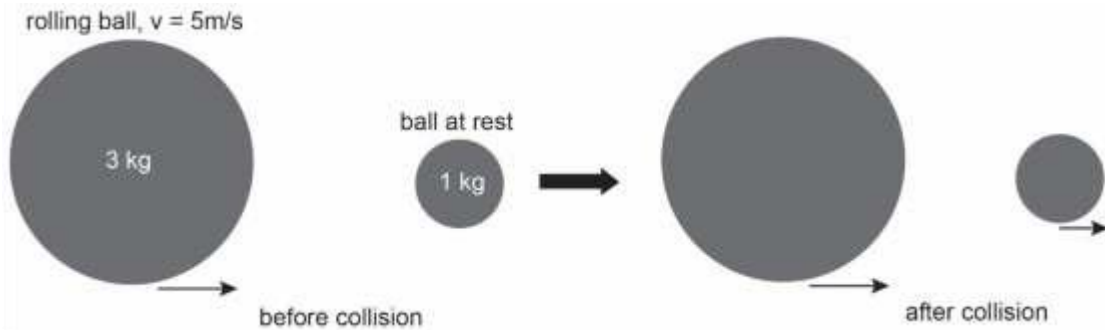


Curriculum Aligned Competency Based Test Items
Science
Class 9 – Chapter 9
Force and Laws of Motion

A rolling ball of mass 3 kg strikes a smaller ball of mass 1 kg at rest. After collision, both the balls roll in the direction shown in the picture.



SAS21S090901

The bigger ball strikes the smaller ball with a momentum.
 What would the momentum of the ball depend on?
 Circle 'Yes' or 'No' to mark your response.

Would the momentum depend on this?	Yes or No
mass of the ball	Yes/No
shape of the ball	Yes/No
velocity of the ball	Yes/No

SAS21S090902

After their collision, both the balls continue to roll for some time and then come to a rest.
 Which external force causes the balls to stop rolling?

SAS21S090903

What would happen if the smaller ball were rolling with a velocity of 5 m/s and struck the bigger ball at rest?

- A. The two balls would continue to roll in the direction of the strike.
- B. The smaller ball would rebound and the bigger ball would roll forward.
- C. The two balls would roll in the direction opposite to the strike.
- D. The smaller ball would stop rolling and the bigger ball would start rolling.

A man pushes four boxes of different mass. The table shows the acceleration produced for each box during the push.

Mass of the box (kg)	Acceleration produced (m/s^2)
10	200
20	100
40	50
80	25



What amount of force does the man exert on each box? Show the calculation.

SAS21S090904

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SAS21S090905

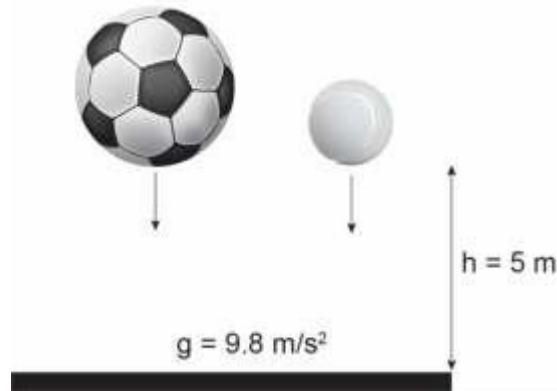
Is the force acting on each box unbalanced? Explain your answer.

SAS21S090906

Which of these represent a balanced force?

- A. A boy sitting on a chair
- B. An object sinking in water
- C. An apple falling from a tree
- D. A magnet attracting an iron nail

A football and a tennis ball fall freely on a marble floor from a height of 5 m.



SAS21S090907

Will the football and the tennis ball hit the floor with the same momentum? Explain your answer.

SAS21S090908

Both balls bounced back after hitting the floor.
What caused the balls to bounce back?

SAS21S090909

Will the balls reach a height of 5 m or less than 5 m after bouncing back? Explain your answer.

SAS21S090910

Which of these will produce the maximum acceleration?

- A. A force of 1000 N acting on a mass of 10 kg
- B. A force of 1000 N acting on a mass of 5 kg
- C. A force of 3000 N acting on a mass of 30 kg
- D. A force of 3000 N acting on a mass of 10 kg

