Y3/4 – Assembly Plan 2

The Power of Forces and Magnets

What makes things move faster or slower?

Preparation:

- Gather items such as a toy car, a magnet, a paperclip, a small metal object, and a ramp.
- Prepare images of objects in motion (e.g., a football being kicked, a rollercoaster, a magnet attracting metal).
- Choose an energetic song like "Eye of the Tiger" (Survivor) or "We Will Rock You" (Queen) to create excitement as children arrive.
- Set up a table with the ramp and toys ready for demonstration.

1	**Welcome and Introduction (3 minutes):** • Start with a question to engage the children: "Who likes to race toy cars? What makes your car go faster or slower?" • Introduce the big question: "What makes things move faster or slower?" Tell the children that today they are going to explore some fun ideas about forces and magnets.
2	**Demonstration 1 – Pushing and Pulling (6 minutes):** • Show a toy car and ask, "How can we make this car move?" • Push the car gently and then push it harder. Ask the children to notice the difference in speed. Explain that a *push* is a type of force that makes things move. • Next, ask, "What happens if I pull it?" Use a string to pull the car slowly and then quickly. Explain that a *pull* can also be a force that moves objects. • Ask, "How do you think pushing something harder or pulling faster changes how it moves?" Let children respond and explain that the harder we push or pull, the faster something moves.
3	**Interactive Moment – Push and Pull (5 minutes):** • Get the children to imagine they are cars. Ask them to pretend they are being gently pushed forward—have them walk slowly in place. Then tell them to imagine a harder push and move faster. • Now, ask them to pretend they are being pulled backwards—get them to step back slowly, then faster. • This physical interaction helps the children experience the concepts of push and pull.
4	**Demonstration 2 – Forces at Work (Friction) (6 minutes):** • Set up a small ramp. Ask the children to predict what will happen when the toy car goes down the ramp. Let the car roll down and ask why it slows down at the end. Explain that *friction* is a force that tries to stop things from moving.

	• Ask, "What would happen if we made the ramp smooth or rough?" Put a smooth cloth on the ramp and let the car go faster. Then place a rough mat and show how it slows down. Explain that friction is stronger on rough surfaces. • Ask the children to think about where they see friction in their own lives (e.g., on the road when cars slow down, or when they slide on smooth surfaces).
5	**Demonstration 3 – The Magic of Magnets (7 minutes):** • Hold up a magnet and a paperclip. Ask, "What do you think will happen if I bring the magnet close to the paperclip?" Slowly bring the magnet close and show how it attracts the paperclip. • Explain that magnets have a force called *magnetism* that can pull metal objects without touching them. Use the magnet to pick up other small metal objects. • Ask, "Do you think the magnet can pull something through paper?" Place a piece of paper between the magnet and the paperclip and show that the paperclip still moves. This creates a "wow" moment for the children! • Let the children know that magnets can even help in real life, such as in machines, trains, and tools.
6	**Interactive Moment – Magnets in Action (4 minutes):** • Ask the children to imagine they are magnets attracting metal objects. Ask them to stretch their arms out as if pulling objects towards them. • Get them excited by imagining they are pulling a huge metal train or even a spaceship. Encourage movement to help them feel the power of magnetism.
7	**Conclusion (3 minutes):** • Summarise the key points: "We've learned about how pushes, pulls, friction, and magnets can make things move faster or slower. These forces are always around us, helping us understand the world!" • Encourage them to notice these forces at play when they play with their toys, ride bikes, or even open a door.

Reflection

Ask the children to reflect on the forces they've seen today. "What do you think about the way things move? Can you find examples of forces at work around you?" Tell them to observe how different surfaces, magnets, or pushes change the way things move throughout the day.

Music

As children leave the assembly, play "We Will Rock You" by Queen to keep the energy high and create excitement about learning more science in the classroom.

Cross-Curricular Links:

- **Science:** Forces and Magnets (Year 3), Forces (Year 4)
- **Physical Education:** Movements and balance
- **Art:** Creating drawings or models of things that move (e.g., cars, planes)
- **Design and Technology:** Exploring how things move in design and mechanics (e.g., cars or toys that use forces)