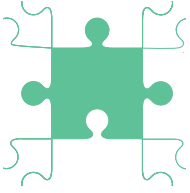


Shape and space: Shape – Suggestions for teaching

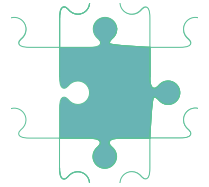
FOSTERING PRODUCTIVE DISPOSITION



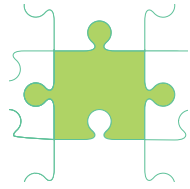
- Connect learning to real-world situations and applications and show children how understanding shapes can be useful in fields such as architecture, engineering, art, and design.
- Provide opportunities for children to engage with hands-on activities, investigations, and open-ended tasks, e.g., *observe a birds-eye photograph of a 3-D construction and build possible matching structures, and encourage them to ask questions, make conjectures, and explore different approaches to problem-solving.*
- Support a deeper understanding of shape and make abstract ideas more concrete by incorporating visual aids, manipulatives, and interactive technology.
- Encourage whole-school activities such as shape trails, scavenger hunts, labelling features, engineer visits, project exhibitions etc.

ENCOURAGING PLAYFULNESS WITH MATHEMATICS

- Encourage children to freely explore a variety of hands-on manipulatives such as pattern blocks, tangrams, geoboards, and 3-D shapes.
- Introduce games and puzzles that involve shapes and spatial reasoning, e.g., *shape bingo, memory games, tangram challenges, shape sorting relays.*
- Take advantage of outdoor spaces to explore shapes in the environment and encourage children to identify and sketch geometric shapes they see in nature or in the architecture around them.
- Incorporate digital tools and apps that allow children to investigate the properties of shapes in creative ways, e.g., *virtual manipulatives, interactive games, and modelling software.*



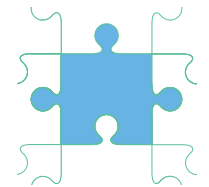
USING COGNITIVELY CHALLENGING TASKS



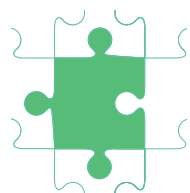
- Ask children to compare and contrast geometric shapes based on attributes such as number of sides, angles, or symmetry and encourage them to justify their comparisons.
- Integrate mathematics with art by asking children to create geometric patterns or designs using shapes, and challenge them to use a combination of shapes to create visually appealing and mathematically interesting artwork.
- Present children with real-world scenarios that involve shape, e.g., *design a blueprint for a school garden, or challenge them to determine the best shape for a container with a given volume.*

EMPHASISING MATHEMATICAL MODELING

- Incorporate hands-on exploration to help children visualise and manipulate shapes and spatial relationships and provide opportunities for children to design, build, test and refine models using these materials.
- Present children with open-ended problems, puzzles, and challenges that support them to apply geometric concepts and strategies to find solutions using a variety of representations.
- Design tasks that allow children to apply their understanding of shape to real-life situations, experiences, and contexts that are meaningful to primary children, e.g., *buildings and house designs, toys and puzzles, art, the natural world, packaging, sports fields markings.*



PROMOTING MATHS TALK



- Ask open-ended questions that prompt critical thinking and encourage children to use vocabulary that describes the attributes of shapes, e.g., *instead of asking, “What shape is this?”, ask “How do you know this shape is a square?”*
- Encourage children to think individually about a problem related to shapes, discuss their ideas with a partner, and then share their thoughts with the whole class, in order to give all children an opportunity to participate in discussion.
- Encourage the class to keep mathematical journals to record their learning, observations, questions, and reflections, e.g., *“today I discovered three ways to draw the net of a cube”,* and provide prompts or guiding questions to support discussion around their learning.