

# The Pedagogical Advantages of Roamer

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As With Well-designed Manipulatives:

- Roamer encourages children to work with their hands and to move around their environment

"The hand is the instrument of the intellect."

- Roamer provides a medium through which to explore the world.
- Roamer allows for meaningful play (closely related to creativity): play that reveals to children the secrets of their environment.
- Roamer provides a material path to abstraction: i.e., a material, or concrete, way for children to model abstract concepts like length, angle, or negative vs. positive numbers.

Unlike Inert Manipulatives:

(And many electronic games, toys, and computer "educational" software)

- Roamer is multiuse: an exploration, modelling, and problem-solving tool.
- Roamer is not limited to rigid or prescribed (pre-programmed) uses or behaviors: children can explore their environment creatively, testing and refining their concepts of it as they go.
- Roamer allows children to think creatively about the solutions to a large variety of inherently interesting problems, and to easily and immediately test their possible solutions.
- Roamer's behavior is transparent, not mysterious like the "black boxes" (software games driven by invisible code, electronic devices with invisible pre-programmed circuits) that children are handed to play with or learn from but which they do not understand. Roamer's behaviors are the direct result of the children's actions.

"Whatever I cannot recreate for myself I do not understand."

- Richard Feynmann, Nobel Laureate in Physics

- Children can identify with Roamer, anthropomorphizing him (or her!) and visualizing movement in space and possible solutions

to Project Challenges through his eyes: a powerful problem solving technique.

- This dramatic aspect of Roamer makes possible another powerful learning tool: the idea of Roamer as the children's student. Children learn by "teaching" their Roamer to solve Project Challenges.
- This way of anthropomorphizing the Roamer adds drama to every work period: Will Roamer learn his task in time?!
- As a "character" Roamer is non-judgmental. He never humiliates but is at the same time absolutely fair: if you give him a bad solution to a Project Challenge, he will always fail to do the work. This non-threatening persona makes children more willing to risk failure in their attempts to find a creative solution to Project Challenges.
- Roamer is extendible: using accessories and platforms children can use Roamer to explore such topics as simple machines, light, color, design, electricity, electronics, computers, robotics, drama, dance, etc.
- Roamer is adaptable to exploration of many areas of the curriculum: science (simple machines, electricity, electronics), math (geometry, arithmetic), geography (map reading), drama and music (putting on plays with Roamer characters), language arts ( books of children's programming solutions to Project Challenges: e.g. "Tricks We Taught Roamer"), computers (programming: uploading and downloading Roamer procedures, modeling Roamer Project Challenges on a Computer Screen), art and design (with Roamer's pen accessories children can teach him to draw or design houses; for plays children can costume and ornament their Roamers) etc.
- Roamer is sophisticated and powerful, yet, with its simplified keyboard and easy maintenance, it provides an ideal entry path (for both children and elementary school teachers) to the worlds of computers, robotics, and information technology.

In sum, the Roamer can serve as the basis of a powerful problem solving curriculum that will help young children begin to develop the habit of creative, independent problem solving while introducing them to the key technologies of the modern Information Age.