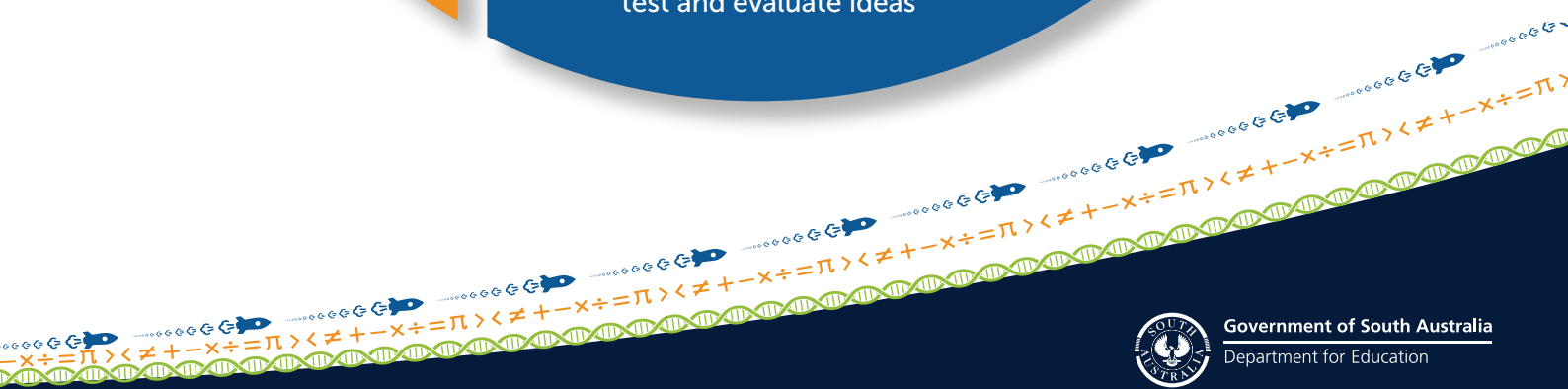
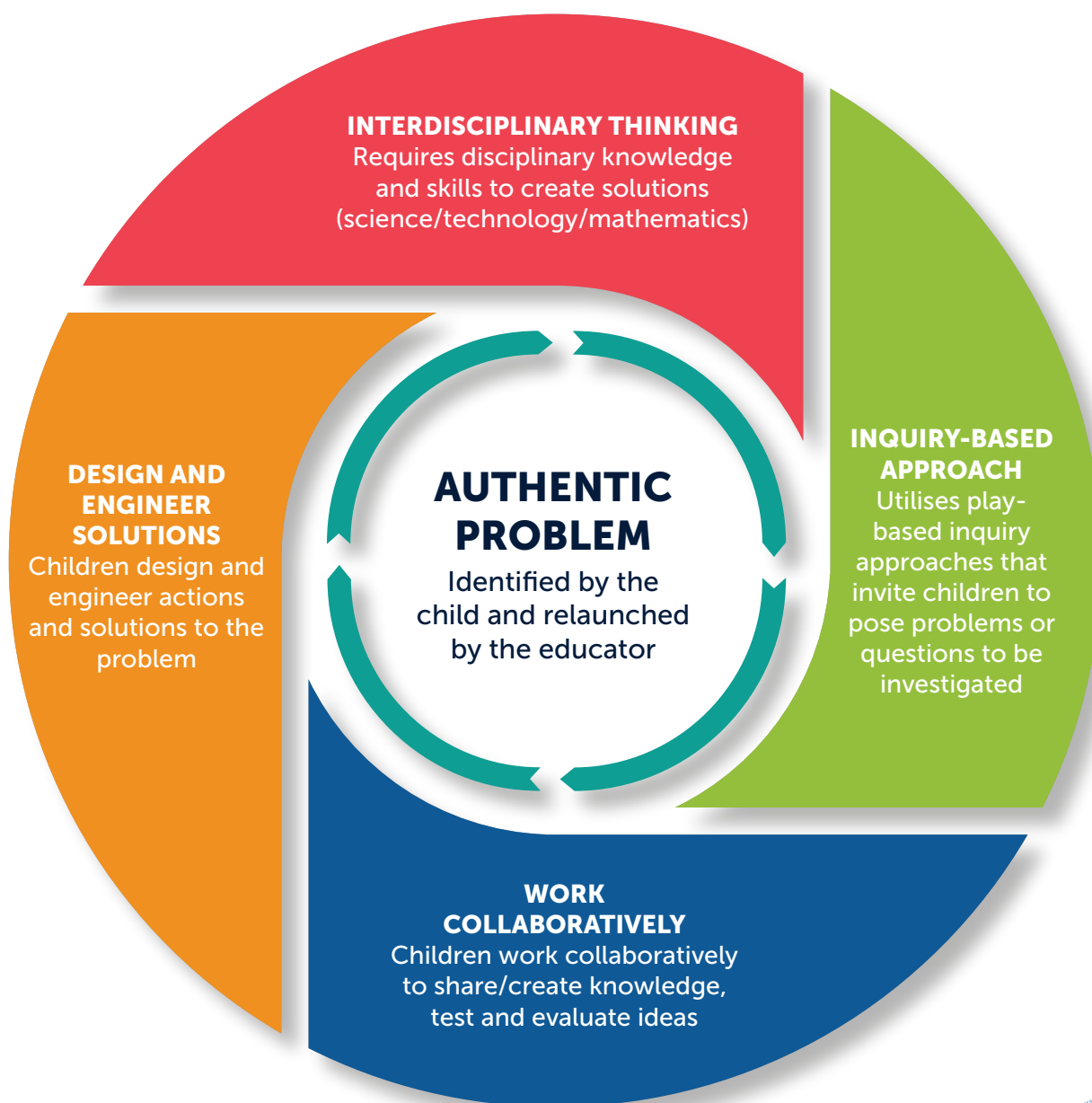


STEM KEY FEATURES for learning design

STEM requires a holistic approach to teaching and learning. When designing authentic STEM learning experiences, educators should start by identifying a problem or question posed by a child, one that requires the child to think like a mathematician, scientist or engineer.

The STEM Key Features model is a reflective tool to support a balanced focus on all the aspects that should be considered when designing STEM learning for children. The model is explained on the following page.



STEM KEY FEATURES

for learning design

STEM LEARNING DESIGN BEGINS WITH

AN AUTHENTIC PROBLEM OR WONDERING

An authentic problem or wondering is one that has been identified by the child and relates to their questioning of a real life situation. The educator will observe this learning opportunity through children's play as they demonstrate an abiding interest in their world.

The analysis of what the child is possibly thinking and seeking to explore provides formative assessment data that will inform the educator's STEM learning design.

Consequently, the educator will support the child to grow their scientific and mathematical thinking and understandings, as well as their dispositions for learning, such as critical and creative thinking.

STEM LEARNING DESIGN INCLUDES

INTERDISCIPLINARY THINKING

STEM learning will incorporate at least two of the STEM disciplines of science, mathematics and technology (both plugged and unplugged). Educators should consider the use of engineering as a process to support children to design their solutions.

AN INQUIRY-BASED APPROACH

An inquiry-based approach invites children to pose problems, ideas and questions to be investigated. Children's interests guide the investigation and learning. This approach is:

- connected to children's natural desire to solve real world problems
- hands on and relevant
- designed to challenge current thinking and consider other perspectives to find solutions.

WORKING COLLABORATIVELY

Rich STEM environments enable collaborative learning between other children, educators, families and, where appropriate, the community. Educators intentionally plan and promote collaborative learning experiences that encourage the sharing and challenging of a diversity of ideas to find solutions to authentic problems.

DESIGNING AND ENGINEERING SOLUTIONS

Young children are born engineers. As they engage with the world around them, they are constantly trying to understand the properties of materials. Designing, making and tinkering are what children do instinctively. Opportunities need to be created for children to design and engineer solutions and actions to problems.