INSPIRE gift guide offers STEM, engineering toy ideas

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A young boy shows off his building skills to his father with one of several toys listed in the INSPIRE Gift Guide. Credit: Purdue University photo/John Underwood

For the second straight year, the INSPIRE Research Institute for Pre-College Engineering issued its Engineering Gift Guide just in time for the holiday shopping season.

This year's guide is filled with more than 50 fun toy and application suggestions intended to engage girls and boys in engineering thinking and design. Thirty books offering stories and facts about engineering for ages 3-18 also are in the guide.

Elizabeth Gajdzik, assistant director of the INSPIRE, said the guide project offers assistance to adults looking for engineering or STEM-oriented (science, technology, engineering, math) gifts.

"The gifts that appear in the guide are not only fun and engaging, they also allow children to learn things like programming, tradeoffs, systems thinking and spatial reasoning," she said. "That really excites parents."

The toys featured in the guide range from the more traditional and well-known Lincoln Logs and Tinker Toys to more high-tech toys that allow 5- and 6-year-olds to begin thinking about programming.

Gajdzik said Purdue professors are excited that toys such as Dash and Dot and OzoBot Bit 2.0 include Blockly, which is the programming that instructors want first-year engineers to understand. Last year's s guide was met with overwhelming interest not only from parents but teachers

as well.

INSPIRE is a research and learning institute established to help educators and parents investigate how children learn engineering in formal and informal spaces and how to increase the ability and interest of a diverse group of students to become engineers.

Two girls build a clubhouse together with a toy listed in this year's INSPIRE Gift Guide. Credit: Purdue University photo/John Underwood

A seal was issued this year to let consumers know that a gift promotes engineering thinking and design and was selected to be in the guide. Companies can include it on the gift itself or on their website.

Monica Cardella, director of INSPIRE, said "We were overwhelmed by the feedback we received last year – that parents as well as grandparents, aunts, uncles and other family members - used the guide to identify gifts for the children in their lives.

"This project is especially exciting as we work to translate our research into resources that are useful to the community. The gift guide builds on multiple research projects where we learned about engineering parents' strategies for helping their own children learn about engineering, as well as research showing that STEM toys are typically purchased twice as frequently for boys as for girls. This is a way we can help get more STEM toys, games and books into the hands of all kids."

The process for this year's toy guide began in the summer with an Internet search for STEM- or engineering-oriented gifts. Coordinators requested the toys from the manufacturers for testing and evaluation.

Following a September deadline, INSPIRE began evaluating the gifts both internally and through the people directly connected to them.

Gajdzik says parents took a look at the various gifts and considered whether they had educational value, were age appropriate, and worth the price. Purdue engineers examined how the toys promoted engineering thinking and were asked if they would stand behind the toy.

And then there was the most important group of subjects: the children. Gajdzik says children ages 3-12 were observed playing with the toys outside of the influence of their parents during an event at Imagination Station, a volunteer-run science center in Lafayette.

"We wanted to see, out of the box, how much assistance they needed," she said. "Is it something they can play with on their own? If it says 6 years and up, can a 6-year-old actually take it, open it and play with it, or

did they need a little instruction? Is it something where parents are going to constantly need to support them?"

Parents also supplied observations from playing with their children and the toys during events at New Community School, a local Girl Scout meeting, and the Patty Jischke Early Care and Education Center.

Gajdzik said the guide provides parents with tips from INSPIRE research that helps to strengthen the STEM and engineering benefits of the gifts.

Many of the gifts evaluated for the guide this year will be donated to Imagination Station.

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