



RIG  
AMA  
JIG<sup>®</sup>



#### A NOTE FROM RIGAMAJIG DESIGNER CAS HOLMAN

Since Rigamajig's first play-test with children, I couldn't wait to expand the kit's potential to support children's imagination. This booklet captures a snapshot of the Rigamajig collection of products, and the guiding principles that they share.

Creating and building without instructions empowers collaboration, and open-ended play provides opportunity for creativity. We've included advice from teachers, caregivers, early childhood specialists, and museum staff to help guide you along the way. When in doubt, trust that children will lead the way. I spend a lot of time observing play, and I've learned that children will figure out ways to use things as I've intended and as I never would have imagined.

As the adult in the room, you don't have to know the answers, rather encourage children to ask, and explore their questions through play. After all, easy is boring!

*Cas Holman*

**Rigamajig** is a large-scale building kit conceived for hands-on play and STE(A)M learning. This collection of wooden planks, wheels, pulleys, nuts, bolts, and rope allows children to follow their curiosity through play while learning 21st century skills. The variety of components encourages kids to share resources and become more inclined to take their contraptions apart to reuse pieces, rather than create a finished product. The pieces can come together as a crane used to convey buckets or materials, or they can become a giraffe, monster, robot, airplane, or just a "thingy."

Rigamajig enables easily accessible, cognitively challenging play opportunities for children of any age, and in any environment—inside a classroom, on a playground, or in any playspace. It fits with principles of STE(A)M education, which integrates science, technology, engineering, art and math in wholistic learning.

This type of hands-on play provides children opportunities for creativity, innovation, collaboration, and critical thinking.



## Rigamajig brings learning to life

With the help of a few adventurous teachers, we've put together a user guide to help you integrate Rigamajig into your classroom, playground, or playspace.

### EMPOWERMENT

Rigamajig puts the power in the hands of the child. We know that through hands-on experiences, children develop physical, emotional, and intellectual skills necessary to engage their world with confidence.

### INVENTION 101

Exercising the imagination is not only exciting but is linked to empathy and compassion. Since Rigamajig has no instructions or right and wrong answers, children imagine what to make and figure out how to make it.

### COLLABORATION

Rigamajig motivates playful, cooperative learning, where children make friends and share resources. When playtime is over, they either take their Rigamajig contraption apart, or leave it for other children to reimagine.

### STE(A)M

STE(A)M goals are built into the design and use of Rigamajig. By adding ART to STEM learning, each of the disciplines benefit from a creative approach and the advantages of an art process. Multiple iterations, thinking 3-dimensionally, visualizing ideas, and critical making are a few of the methods art brings.



### SOCIAL EMOTIONAL

For young children, social skills lead to learning how to live, work and play within a community. Rigamajig teaches children to work in small groups; and develop social skills for negotiation—to learn from and listen to peers, and to find a voice. Ask the children to share stories about their creations.

### SCIENCE + TECHNOLOGY

As they build, children analyze form and function to solve problems to satisfy human and environmental needs. They construct and use simple machines (i.e. pulleys, ramps and screws), think about compression and tension, balance, properties of wood, and understand how parts relate to each other to create systems to perform functions.

### ENGINEERING + ART

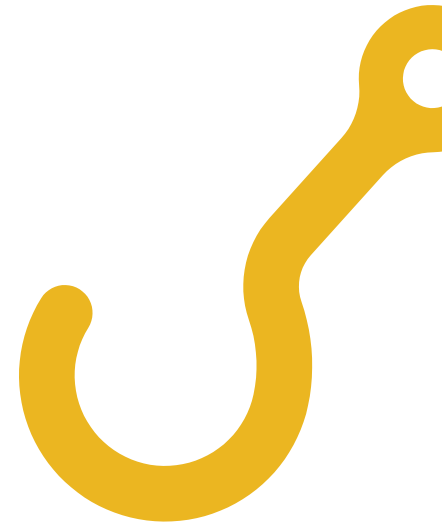
Through their play, children experience the process of research, design, model building, testing and modifying that is part of every inventor's process. Have children draw their creations and explain how they "work."

Art goes beyond creativity. The art process involves the study of materials, prototyping, testing and changing. Art practices lead children to think outside the box and approach problems playfully and with an open mind.

### MATH

The modularity of the planks helps bring math language into children's play. The parts work intuitively as units for building things. Two small planks are equidistant to one large plank. This allows for geometric understandings. Clean up time is always a counting and sorting opportunity.

 **Find  
detailed  
lesson plans**



## Role of the Adult

The materials in the Rigamajig Basic Builder Kit contain inherent interest for young minds. Children find intrigue in the variety of components and often lead their own discovery with no adult prompt. This section highlights best practices of how the adult can support and encourage children to continue investigation, despite frustrations, challenges, and excitement that can arise from the design process.

First, take time to consider the dynamic of the classroom or playspace. Next, review the examples of the different roles adults can adopt as they work with children in classrooms, afterschool programs, camps, museums, and STEAM learning centers around the world.

### OBSERVER

It is important that the adults observe and listen to the children as they play. As the adult attentively sees, hears and listens to the children's visions, the adult might repeat back parts of what the child described to create an environment that promotes reflective learning. What dynamic is created when the adult interacts in this way? Do the children expand upon their idea with deliberate thought and action?

### CHALLENGER

Challenges and "play prompts" are not always necessary for children to begin the process of exploration. The adult may find that prompts are most useful to children and effective for learning once children are familiar with Rigamajig. Prompts can provide a fresh point of view for the children to contemplate and perceive their work.

### SUPPORTER

This kind of play rewards effort over outcome. One of the most interesting observations when working with children is that their ability to make an idea can be very different from their ability to conceive an idea. As a best practice, ask questions, but try to refrain from suggesting or advising as a way to help the children explore their concepts. Encourage the children to create independently.

## How To Prepare Space

### ORGANIZATION OF MATERIALS

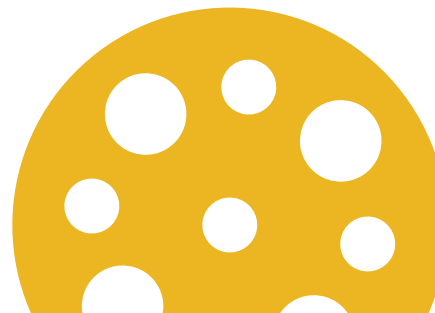
Use the storage cart to allow children to see the materials easily at a glance. Keep like parts together, for example: planks sorted by size, brackets together, nuts with wing bolts, then rope, and other materials. Consider organizing the pieces while playing; sorting and stacking make a great cooperative activity. It is also helpful for containers to be labeled with words and symbols to visually locate work materials and help return them during clean up. This organization gives children a sense of ownership and independence while building with Rigamajig.

### DIVISION OF SPACE

As with any learning opportunity, the adult will need to prepare and create the environment to encourage the children to play and build with Rigamajig. Since building is often a social activity that requires experimentation and negotiation, it is important to ensure children can interact with each other and the materials without disturbing other quieter activities within the space.

## Considerations

- Will the children work in one group, several smaller groups, or individually?
- How will the work space(s) be defined?
- What methods can be applied to the session to encourage children to take the materials that interest them and move away from the "central" storage?
- How will the pathway to the "central" storage area remain clear during a work session?
- Take photographs of the children at work, capture their process, and include them in their work environment. This will encourage reflective thinking on past work. Documenting the children's construction helps them to build with intent.
- Ask the children to make a portfolio or glossary of what they created. Aim to capture and promote the pre- and post-build conversation about what they achieved, and what inspires them to build next.





## What Will Happen

### STAGES OF INTERACTION

Children have varying learning styles and paces at which they learn as they explore the world around them. As children begin to build and make progress from novice to expert users of the Rigamajig kit, adults may begin to see patterns of learning and development in individual children. Learning and growth varies child to child, as learning is not linear; rather, it is like branches of a tree that suggest the many possibilities of learning at each turn.

During a build session, adults will witness children manipulating the components of Rigamajig to meet the needs of their learning level. Some children spend the session satisfied with two objects. Other children will use nuts and wing bolts to make random connecting pieces, deciding what “it” is after they have completed their creation. Meanwhile, others will have an idea from the beginning and proceed to create that specific concept. It is important to realize that all of these stages are valuable and none better than another. Each initial interaction is an essential starting point of what educators want to validate—an investigation.

### IMAGINATION + INVESTMENT

Play, fantasy, and imagination are all part of children’s everyday cognitive thinking and investigations. It is when these are all manifested in a single activity that children invest and fully engage in problem solving and amazing feats of creativity. In this way, children are much like some of our greatest thinkers. Teaching and learning is most exciting in the moment when children can utilize their full capacities.

Rigamajig can be enhanced with other props and materials that are appropriate for the age of the children in the group. Add more rope, sheer, fabrics, canvas, pots and pans, dolls, door knobs, and found objects to increase the Rigamajig experience. Providing appropriate space and organization for these materials will impact the way children develop relationships with the materials.

**We believe open-ended play is an essential part of childhood, and our products support the curious inquiry that drives play and learning.**

## Care + Safety

### CARE OF YOUR RIGAMAJIG

With a little attention, Rigamajig will last generations. We recommend periodic inspections to insure planks remain smooth enough for tender hands. If the planks suffer dings and dents, simply sand lightly with 300 grit sandpaper to prevent splintering. To refinish the wooden elements, lightly sand the surface and refinish using a trusted brand of varnish. Follow the manufacturer’s instructions for best results. Wingbolts and nuts are made of an extremely durable recycled nylon.

They can be washed with soap and water or in a washing machine.

**Cause and effect, balance, planning ahead, counting, sorting, and organizing are just a few things that can be practiced during clean up.**

### SAFETY WITH RIGAMAJIG

- Children should be supervised at all times while playing with or around Rigamajig.
- Rigamajig contraptions should never be climbed on, stood upon, or ridden.
- Encourage children to be aware of their surroundings and play cooperatively.
- Children and adults should be cautious during the disassembly of Rigamajig contraptions. Encourage children to work together when taking things apart.
- The “de-construction” of Rigamajig creations becomes a great learning opportunity.

- Manufactured in the U.S.
- Plastic parts are 100% recycled nylon
- Wood parts are made from the highest-grade Baltic birch plywood and finished with a non-hazardous, air-pollutant-free finish
- Complies with U.S. & EU Consumer Product Safety Testing for Children’s Toys



# PLAY PROMPTS



Build a Rigamajig that can lift something.

Build a Rigamajig you can get inside.

Build a contraption to take you to the center of the earth.

How many different ways can you join three pieces?

Build a contraption to send a bucket from one place to another.

Create something with four legs and a tail.

Give it a name. Make up a story about where it came from.

Build a structure that would allow you to live on a cloud.

Build a contraption that would allow you to ride a whale.

Tell a friend about your invention.

What is the tallest structure you can make with 5 pieces?

What can you build with 20 pieces?

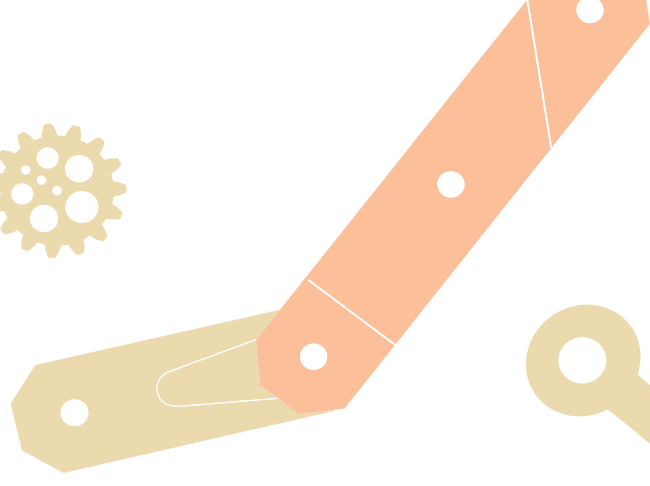
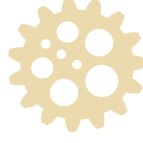
Tell and write how your contraptions work.

Make a structure that incorporates an empty box.

Use the Rigamajig to make a friend.

Now that you have made a structure...look at your neighbor's creation and find a way to join your two structures to make a new one. What might it do?

Draw a picture of your Rigamajig creation and label the parts.



# THE RIGAMAJIG FAMILY OF PRODUCTS



## BASIC BUILDER KIT

Rigamajig Basic Builder is ideal for classrooms, children's museums and groups of children learning and playing collaboratively. The solid wood thick planks range from 12"-44", and enable children to build things larger than themselves. Children often say "this isn't a toy, this is real!" as they familiarize themselves with the scale and weight of working with wood. All while cooperating and communicating to problem solve, pretend and play. Storage cart included!

COMPATIBLE WITH RIGAMAJIG ADD-ON KITS





THE RIGAMAJIG FAMILY OF PRODUCTS  
ADD-ON KITS LISTED BELOW REQUIRE BASIC BUILDER

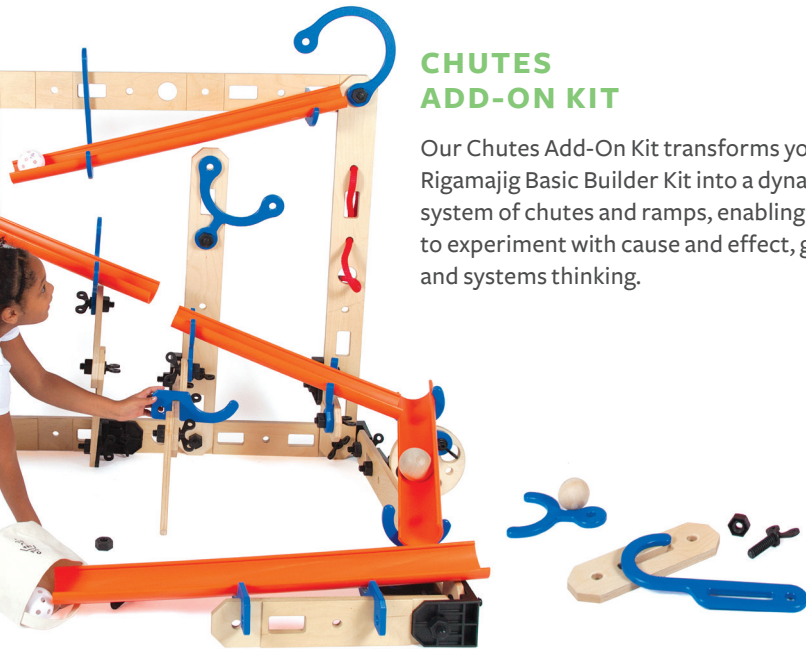
**LOCOMOTION  
ADD-ON KIT**

Expand your Rigamajig Basic Builder Kit with our Locomotion Add-On Kit to make rolling, spinning, mobile contraptions! Axles and axle bolts enable wheels, propellers, pinwheels, and more to spin freely, while swivel casters provide an immensely versatile range of motion.



**CHUTES  
ADD-ON KIT**

Our Chutes Add-On Kit transforms your Rigamajig Basic Builder Kit into a dynamic system of chutes and ramps, enabling children to experiment with cause and effect, gravity, and systems thinking.



**SIMPLE MACHINES  
ADD-ON KIT**

The Simple Machines Add-on Kit has gears, belts, racks, axles, knobs and pins to help get things moving. This kit works with the Rigamajig Basic Builder Kit to experiment with and make new connections, creatures and machines.



**WORKSHOPS**

Our freestanding Workshop units enhance play value by allowing kids to see all the Rigamajig parts and pieces displayed, helping them to imagine what they can create and build! Workshops are a great way to establish an interactive exhibit and play area within your school, museum, library, community organization, or maker space. Workshops are available for the Basic Builder Kit and Add-On Kits.

COMPATIBLE WITH  
ALL RIGAMAJIG PRODUCTS





## THE RIGAMAJIG FAMILY OF PRODUCTS



### RIGAMAJIG JUNIOR

Rigamajig Jr is designed for home use. Perfect for playing on the floor, backyard or even in the back seat, its handy duffle bag makes it easy to put away and bring anywhere. The pieces make Large enough to make things to play inside of, but small and light enough to play in a lap or table top.

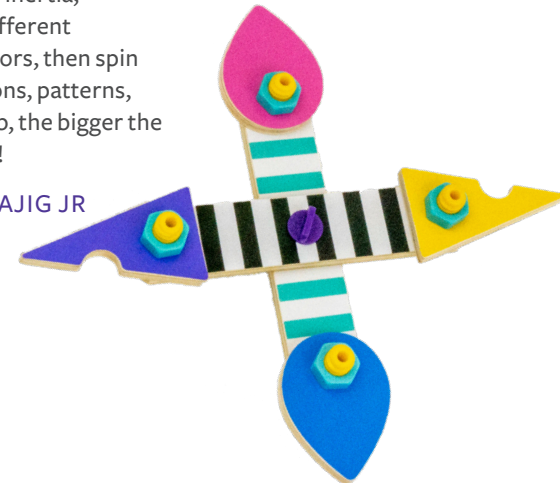
COMPATIBLE WITH RIGAMAJIG JR SPINNING TOPS



### RIGAMAJIG JUNIOR SPINNING TOPS KIT

We designed our Rigamajig Junior Spinning Tops Kit for experimenting with inertia, symmetry, and motion! Build different combinations of shapes and colors, then spin your tops to make optical illusions, patterns, and sounds. The weirder the top, the bigger the surprise when it's set in motion!

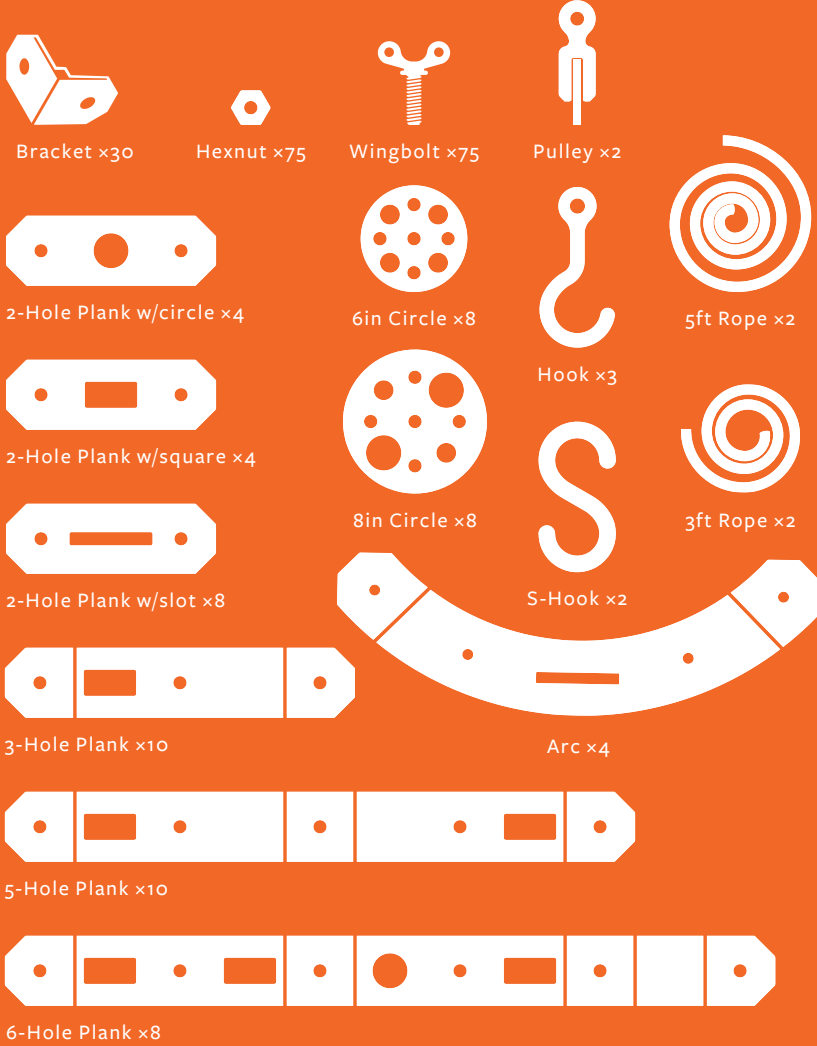
COMPATIBLE WITH RIGAMAJIG JR





# RIGAMAJIG BASIC BUILDER KIT

265 PARTS IN ALL

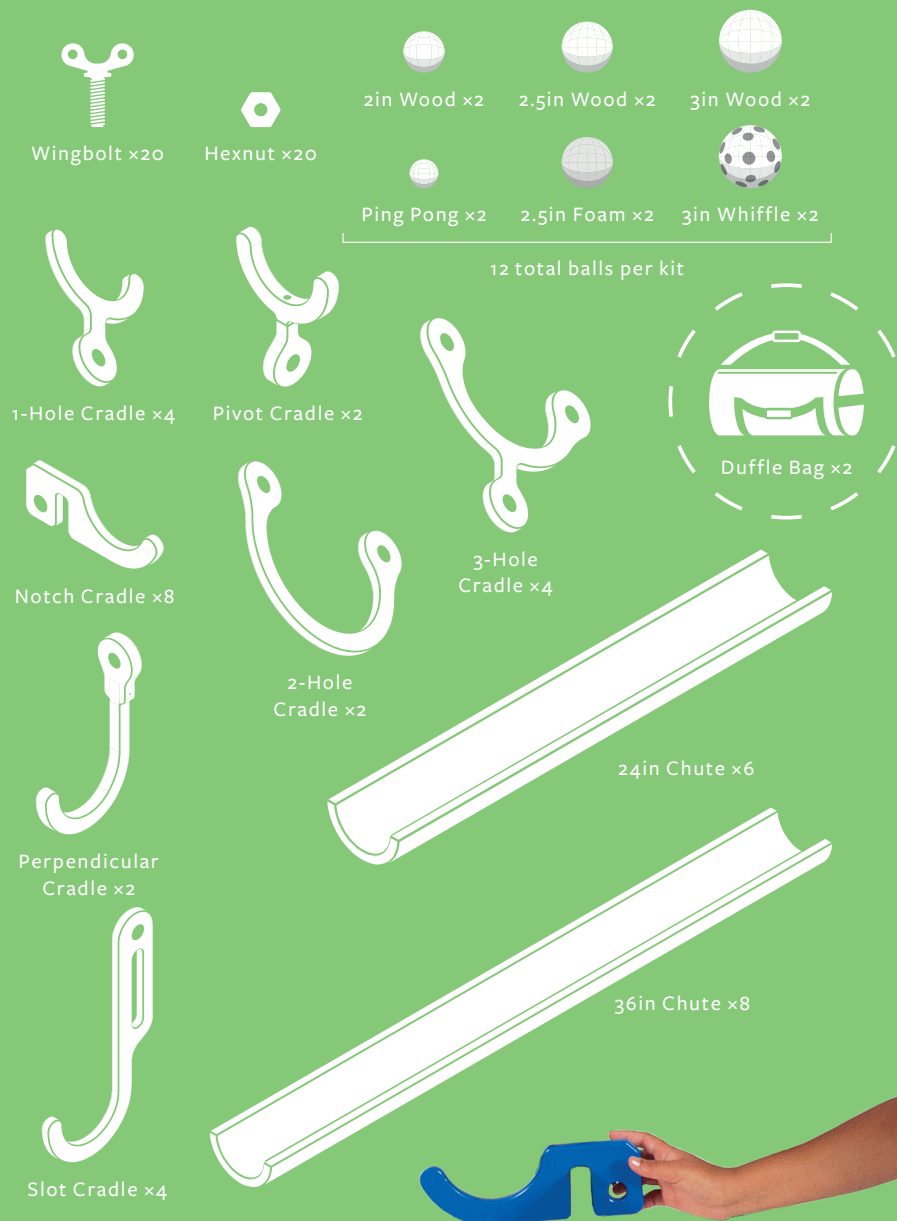


*\*Actual size of parts may be slightly different from icons shown. Scaled relative to the 7-year-old's hand shown here.*



# CHUTES ADD-ON KIT

93 PARTS IN ALL

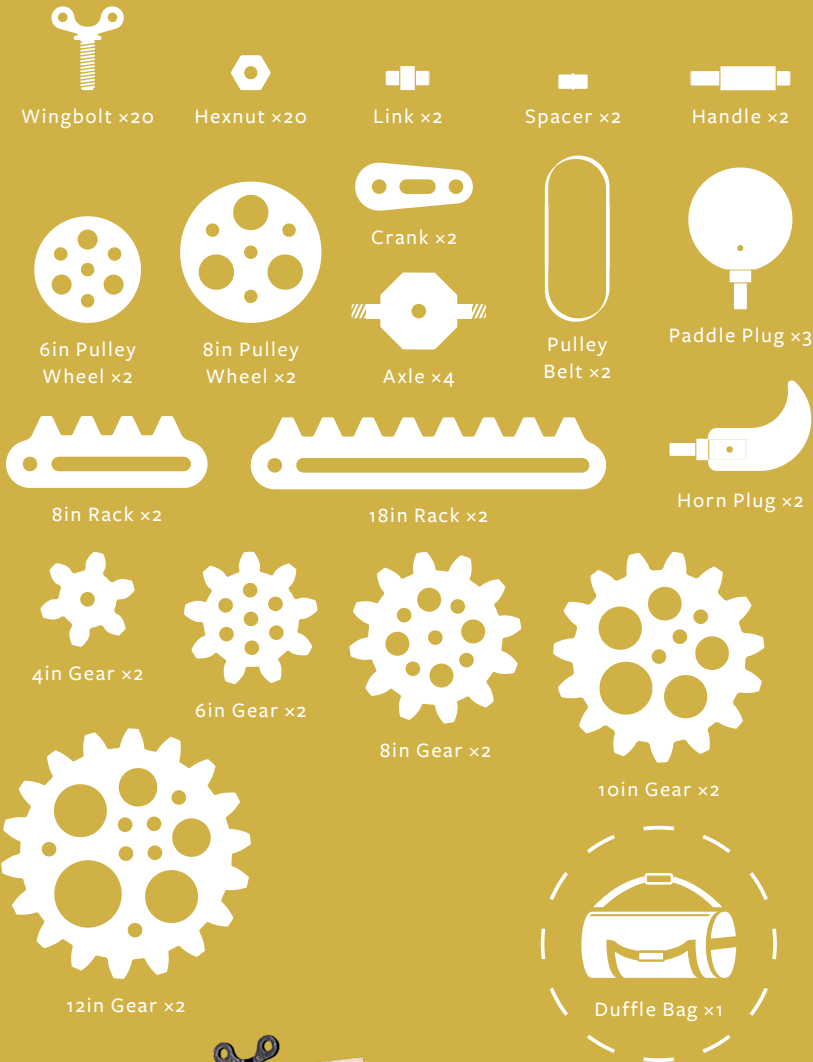


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# SIMPLE MACHINES ADD-ON KIT

80 PARTS IN ALL

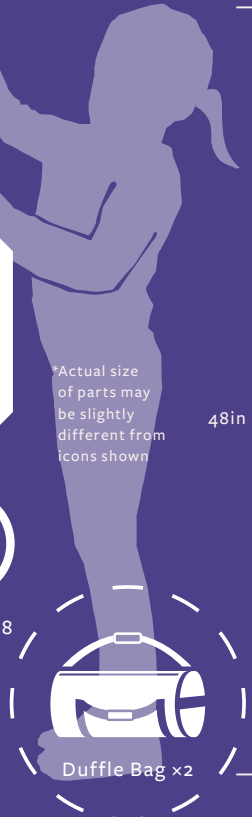
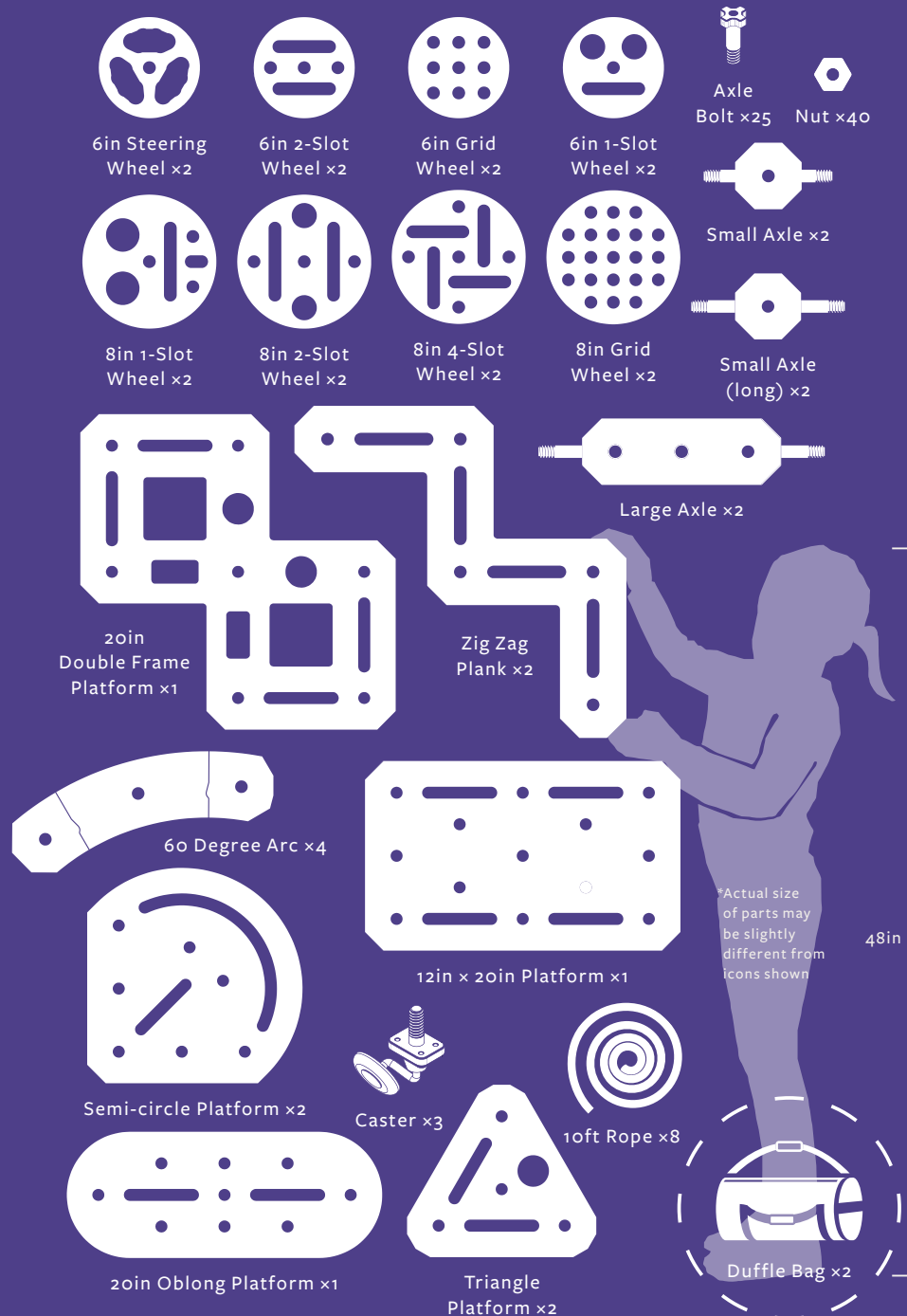


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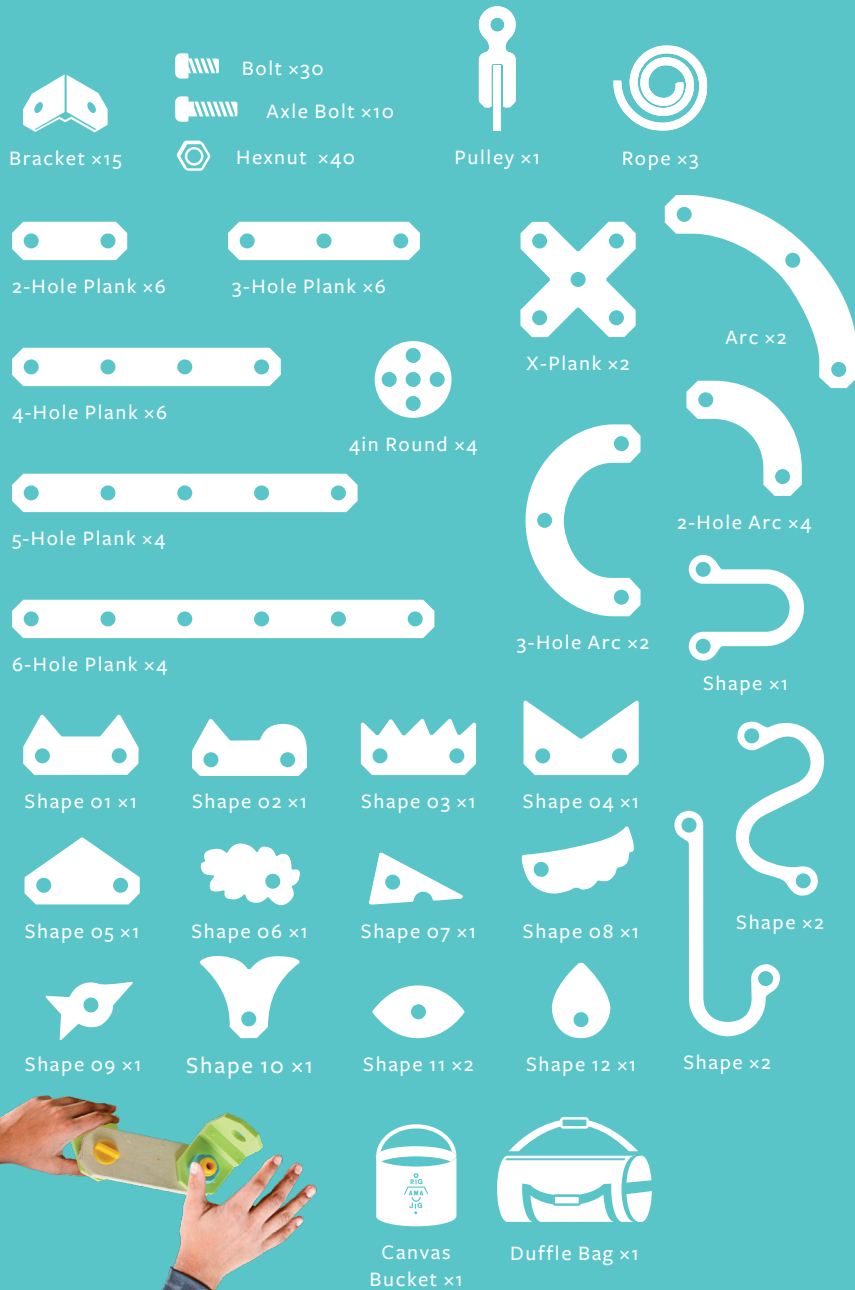
# LOCOMOTION ADD-ON KIT

119 PARTS IN ALL



# RIGAMAJIG JUNIOR

## 155 PARTS IN ALL

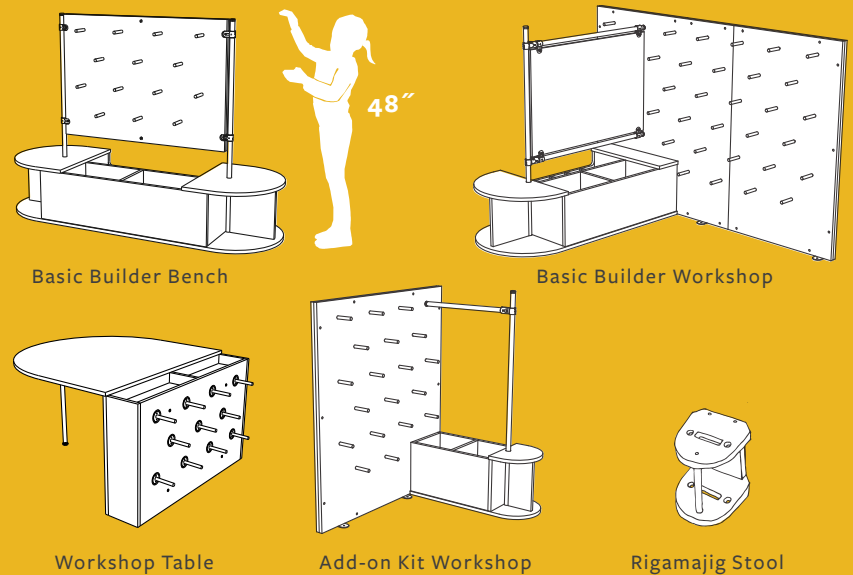


# RIGAMAJIG JR SPINNING TOPS

## 70 PARTS IN ALL



## WORKSHOPS







Rigamajig is a family of products from Heroes Will Rise, an independent toy company founded by Cas Holman to design tools for the imagination.

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