

The Parent's Corner

Adapted from the "The Parent's Corner" by Scot Osterweil and Chris Hancock in the original Logical Journey of the Zoombinis User Manual

This is intended as a companion piece to "The Mathematical Learning of Zoombinis" and should be read in conjunction with it.

Enriching Your Child's Learning Experience

Having an active interest in your children's learning activities often reinforces their own enjoyment and skill development. For example, it has long been known that children whose parents regularly read to them become better readers. Something similar can apply to the playing of this game and the learning that takes place. Being an enthusiastic and interested participant in the game will help inspire your young learner. The more active your interest, the more effective the game will be as a learning environment.

Getting Involved

Try playing the game yourself. Attempting to solve the puzzles will help you understand and appreciate the kinds of thinking that your child is doing. You will likely start enjoying it, and become engaged in the challenges as well! Don't be surprised if the puzzles are difficult at first for you as well. There is actually a great opportunity here: your child can learn a tremendous amount by teaching you! The process of discussing these ideas may help the child bring them into focus, and articulate his or her understanding and mathematical thinking. In addition, watching you play, and listening to you think aloud about the puzzles, will help your child learn strategies and develop logical approaches to finding solutions.

Neither you nor your child should expect to know the answers right away. Players will learn a lot by following wrong paths and making errors. The key to solving the puzzles is how you evaluate the evidence revealed by incorrect attempts. Much of the excitement in the game is in developing a strategy that consistently lets you succeed at a puzzle. Even after you have such a strategy, solving the puzzle each time will bring new ideas and understandings.

When the Going Gets Tough

Zoombinis doesn't reveal answers to the children – it gives them the freedom to figure out the problems and invent solutions. This helps stimulate children's curiosity and enhances their enjoyment of the game. However, sometimes a puzzle or a new difficulty level can seem especially challenging, and your child may want your help.

You can reassure your child that perplexity can be a normal part of the game, and offer encouragement to keep trying. Being challenged is an essential part of the learning that takes place in the game. It is this difficulty that stimulates the logical thinking and problem-solving process.

At an easier level of play, your child may have become accustomed to "beating" puzzles by getting all the Zoombinis through. When he or she moves up a level and faces a harder challenge with increased variables, trying to quickly "beat" the puzzles may not be a practical goal right away. Instead, it is time to take risks and experiment in order to collect clues. Part of the

challenge of a higher level is having the patience to practice more trial and error, and use more attempts, on the path to success. Every unsuccessful attempt adds to your child's base of information about the way the puzzle functions.

Sit with your children as they play, and listen as they explain the problem. Ask them about areas of the puzzle they have figured out so far, and about the parts they haven't. As they make an attempt, ask them what they notice about the feedback they received from the program. You may want to help them further, by asking questions that might draw their attention to useful clues in the scene, or by innocently suggesting a few moves. Without actually revealing the answer, you can help guide your child toward recognizing a successful path.

Encourage your child to play with a friend, sibling, or adult family member. The game is designed to accommodate multiple players and cooperative turn taking, and the conversation that naturally occurs between players will help develop their own understanding. The game can become naturally more exciting as players have opportunities to share their revelations about the puzzles, and help a partner discover the hidden rules.

If your child is still feeling uncertain, or feels frustrated about a specific puzzle, there are a couple of things your child could do:

- Take a break from that puzzle by taking Zoombinis along other paths. Playing another activity may even yield insights that can be applied when your child decides to try the puzzle again.
- Play quickly, enjoy the game, and don't worry about solving the entire puzzle. Even when a puzzle seems very difficult, you can often get at least a few Zoombinis through to the next scene.
- If at a higher level, return to a lower level (by signing in under another name or by using Practice Mode), and play the puzzle again to experience success and re-build confidence. Then try the harder level again, and apply strategies used while solving the lower level.

Making Connections Beyond The Game

As in the puzzles in Zoombinis many things in our everyday lives require logical thinking and problem-solving skills. Encourage your child to think of ways that the tasks faced by the Zoombinis mirror everyday issues. A quarterback in a football game must observe the surroundings, consider the actions of the defense, and decide which action will gain the most yards. The meteorologist on the local news makes educated predictions about future weather by gathering information to form a hypothesis. In science class, students experiment with combinations of liquids to see how they interact and change.

Like the Zoombinis, many things in our everyday lives have several independently varied attributes in different combinations. For example, the people in your address book can be grouped in several ways: by where they live, by their ages, or by their relationship to you. A child's baseball card collection can be grouped by teams, by playing position, by batting averages, etc. It can be fun for you and your child to simply look for such objects around the house and discuss what they have in common with Zoombinis and how they can be arranged, grouped, and organized. You can even encourage your child to consider attributes that he or she shares with friends and family members.

You can also create games using varied objects. In a guess-my-rule game, your child can group items in left and right hands and then ask you to explain what the objects in each hand have in common. Or organize a collection of objects on graph paper to create a dimensional map similar to Hotel Dimensia on Mudball Wall.

Your child may make other connections to the game's characters or story which do not appear to be mathematical but which nevertheless are important to them. Any fantasy play or storytelling about the game should be encouraged, as it reinforces imagination and engagement in the game which ultimately helps your child master the mathematical ideas.

Encouraging Your Child's Progress

Your child's mastery of successive levels of the game is one clear indication of progress. But the child who can move a lot of Zoombinis through the game, even without advancing to new levels, is also mastering the mathematical content and applying thinking skills. Perhaps your child was only able to move three Zoombinis through a puzzle at the Not So Easy level, but now succeeds at getting six through. Your child has begun to understand the rules of the puzzle and is applying thinking strategies to arrive at a solution.

Listen to your children talk about the game. Are they involved and engaged in the game? How do they explain the behavior of the program? How well do they explain their own strategies? Do they see interesting connections between the game and the problem solving they do in school or elsewhere in their lives? These conversations help reveal that your child is learning and applying the skills they have practiced in the game.

Remember that your child's problem-solving skills are constantly developing and growing. Certain ideas may take root gradually, and improvement may appear to occur in little bursts. As your child is intrigued and challenged by the puzzles, progress is being made regardless of the specific success level with the puzzle. The fact that your child is excited about thinking about the puzzle, and actively experimenting with strategies, demonstrates that he or she is using logical thinking skills.