CODING EXPRESS

Teacher Guide Introduction

Who is the material for?
The Coding Express Teacher Guide is designed to help preschool teachers develop children's understanding of cause and effect relationships, and early coding concepts, such as sequencing, looping, and conditional statements. Using these lessons, you'll support the children's learning, helping them to practice early coding skills, like problem-solving, computational thinking, and using digital tools to design and express ideas. At the same time, they'll be developing early literacy and language skills.

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What is it for?
Designed for preschoolers, the Coding Express Set uses a relevant theme that naturally incorporates early coding skills. Working with the set, children will intuitively use computational thinking to develop designs and express ideas as they build a train and tracks, and position action bricks to affect the train's behavior.

The Coding Express Teacher Guide provides fun and engaging opportunities for exploring early coding-related concepts. Using the Teacher Guide, you can facilitate engaging early coding lessons in which children think like digital age learners as they build train tracks of various shapes. Most importantly, the physical and digital lessons will help children to become problem-solvers by enhancing their creativity, collaboration, and communication skills.

What is it?

The Coding Express includes 234 bricks and the following support materials.

1. **A "Getting Started" activity card**
   Use these five quick steps to introduce children to the unique elements of the set, including the train engine, train tracks, and action bricks.

2. **An Introduction Guide**
   A complete overview of the Coding Express solution, the app, the building cards, how to start the train engine, and where to download the Teacher Guide.

3. **A Coding Express poster**
   An overview of the action brick's behaviors and inspiration for different ways of setting up the train tracks.

4. **Six Building Cards**
   These two-sided cards show a variety of inspiration models; the green-sided cards show simple models and the blue-sided cards show more challenging models.

Additionally, the Coding Express App is available to download free of charge from the App Store and Google Play.

How are the learning objectives achieved?

In each lesson, strategic questions guide the children through the process of applying early coding concepts and skills, while the LEGO® DUPLO® building activities reinforce creativity, inquiry, and exploration.

The Coding Express Teacher Guide includes four lessons to be used with the physical set and four app-based lessons.

• The physical lessons are designed to help children understand the key concepts of early coding: sequencing, looping, and conditional statements (if…then…)
• In the app-based lessons, children apply the knowledge they've gained from the physical lessons and practice these skills in a more engaging way, specifically targeting the learning areas of music, character, journey, and math.

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The table of contents gives a brief description of the topics covered in each lesson. The lessons are labeled as *beginner*, *intermediate*, or *advanced*, based on the skills and knowledge necessary to complete them. Feel free to select and adapt the lessons according to what's most relevant and appropriate for your preschoolers. The mini videos in each lesson give a good overview of each lesson and should help you to easily prepare and facilitate the lessons.

Lesson Structure
Each lesson is structured according to a natural learning flow, which promotes successful learning outcomes. The Engage, Explore, and Explain phases, which are the first three phases of each lesson, can be done in one session. The Elaborate phase is more challenging and can be completed during a later session. The Evaluate phase summarizes the specific learning skills covered in each lesson.

Engage
During the Engage phase, physical games, short stories, and discussions will spark children's curiosity and activate their existing knowledge while preparing them for a new learning experience.

Explore
In this phase, the children will participate in a hands-on building activity. As their hands create models of people, places, objects, and ideas, their minds will organize and store new information related to these structures.

Explain
During the Explain phase, children will have the opportunity to reflect on what they have done, and to talk about and share insights they have gained during the Explore phase of the lesson.

Elaborate
New challenges in this phase build upon the concepts children learned previously in the lesson. These extension activities enable children to apply their newly-acquired knowledge, reinforcing what they've learned.

Evaluate

The Coding Express lessons have been developed based on the science, math, and technology guidelines from the National Association for the Education of Young Children (NAEYC), Head Start, and the 21st Century Early Year Learning skills (P21).

The learning grid and the 21st century learning skills framework give an overview of the learning values that are mentioned throughout this Teacher Guide. The learning goals listed at the end of each lesson can be used to determine whether each child is developing the relevant skills. These bullet points target specific skills or pieces of information that are practiced or presented during each lesson.