



CODING EXPRESS

Teacher Guide Introduction

Who is the material for?

The Coding Express Teacher Guide is designed to help early years and foundation stage (EYFS) 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 will support the children's learning, helping them to practice early computational thinking skills like: coding, problem-solving and using digital tools to design and express ideas. At the same time, they will be developing early literacy, communication and language skills.

What is it for?

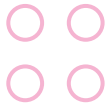
Designed for early years and foundation stage children, the Coding Express Set uses a relevant theme that naturally incorporates early coding skills. Working with the set, children will intuitively use computational thinking to develop designs and express ideas as they build a train and tracks, and position 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.



Watch Video





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 many of the prime and specific learning areas of the EYFS Framework.





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 is most relevant and appropriate for your children. The mini videos in each lesson give a good overview of each lesson and should help you to easily prepare and facilitate the lessons.



Watch Video

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 summarises 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 organise 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 have learned.





Evaluate

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

The lessons in this teacher guide have been localised using the Statutory Framework for the Early Years Foundation Stage and the Early Years Foundation Stage Profile 2019 Handbook.

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.

The statements below, taken from the Statutory Framework for the Early Years Foundation Stage, highlight the importance of planning and implementing the kind of play-based, exploratory learning found in this guide:

**Each area of learning and development must be implemented through planned, purposeful play and through a mix of adult-led and child-initiated activity. Play is essential for children's development, building their confidence as they learn to explore, to think about problems, and relate to others. Children learn by leading their own play, and by taking part in play which is guided by adults.*

In planning and guiding children's activities, practitioners must reflect on the different ways that children learn and reflect these in their practice. Three characteristics of effective teaching and learning are:

- playing and exploring - children investigate and experience things, and 'have a go'*
- active learning - children concentrate and keep on trying if they encounter difficulties, and enjoy achievements*
- creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things*





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GETTING STARTED

CODING EXPRESS

45025 AGES 2-5 FOR 3-6 CHILDREN

This Getting Started activity card will help you introduce the Coding Express set to your early years and foundation stage (EYFS) children. The activities are designed to familiarise children with the unique elements of the set, which include a train engine and action bricks. After completing some or all of these activities, you can download the Teacher Guide for more in-depth activities related to early coding skills.



LEARNING OBJECTIVES

Early Technology & Science

- Exploring and using simple technology
- Understanding cause and effect
- Making predictions and observations
- Developing computational thinking
- Developing spatial thinking

Download the teacher guide:
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Five steps to a great start:

- 1 Demonstrate how to lay the track pieces. Let the children discover the different shapes the tracks can make. Encourage them to experiment with the track switches and red rail stoppers. Have them build a track with three or four different end points.
- 2 Choo-choo! Introduce the train engine. Demonstrate how to start and stop the engine, then have each child take a turn starting and stopping it. Show them how to move the engine from one end of the track to the other so that everyone can have a turn.
- 3 Show the children how to position the action bricks along the train track. Ask them to lay one of the action bricks on the track and then start the engine. Have them describe



TEACHER TIPS



- The building cards provide inspiration to help the children build their models.
 Green cards – less challenging models.
 Blue cards – more challenging models.
- They can also design and build their own unique models.

what they observe when the engine goes over the action bricks. Repeat this for all of the action bricks and then let the children experiment with the bricks in free play.

- 4 Show the children the building cards one at a time and ask them to describe what they see. Ask whether they have been to any of the places shown on the cards and to recount their experiences. Have the children work together to build at least three of the places shown on the building cards.
- 5 Now put all of the pieces together! Ask the children to place their models along the track. Encourage them to use the engine and the action bricks to transport figures to and from the different destinations along the track.




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 PERFECTIONNEMENT PROFESSIONNEL
 SVILUPPO PROFESSIONALE
 DESARROLLO PROFESIONAL

DESENVOLVIMENTO PROFISSIONAL
 SZAKMAI FEJLŐDÉS
 PROFESIONALĂ ÎNTĂLȚĂ
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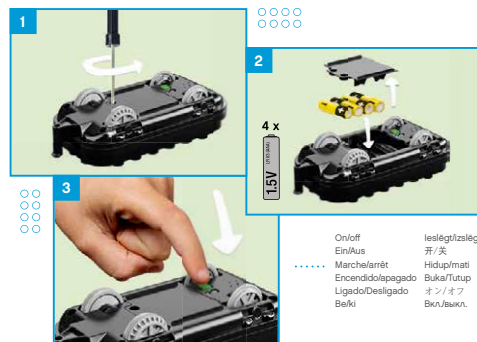


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CODING EXPRESS	INTRODUCTION GUIDE
DIGI-ZUG	KURZANLEITUNG
L'EXPRESS DU CODAGE	GUIDE D'INTRODUCTION
EXPRESSO DA PROGRAMAÇÃO	GUÍA INTRODUCTIVA
PROGRAM EXPRESSZ	GUÍA DE INTRODUCCIÓN
ÁTRÁ PROGRAMMÉSA	IEPAZĪŠANĀS ĢĒJĒDĪS
编程启蒙小火车	BEVEZETŐ ÚTMUTATÓ
デコボコ プログラミングトレンセット	入門指南
Экспресс «Юный Программист»	Вводное руководство

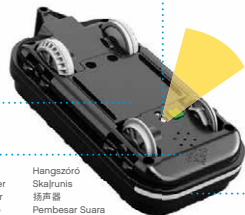
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Motor
Moteur
Motora
电机
Мотор
Двигатель

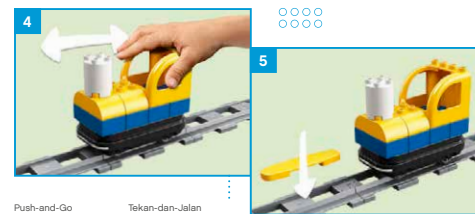
Speaker
Lautsprecher
Haut-parleur
Altoparlante
Altavoz
Coluna



Hangszóró
Skjalrunis
Pembesar Suara
スピーカー
Динамик

Light
Licht
Lumière
Luz
Fény

Colour Sensor
Color Sensor
Farbsensor
Capteur de couleur
Sensore di colore
Sensor de color
Sensor de Cor
Színérzékelő
Krásu sensors
色彩传感器
Sensor Warna
カラーセンサー
Датчик цвета



Push-and-Go
Push-And-Go
Push-and-Go
Iedarbināšana pastumjot
Инерционный двигатель
推动——让火车自动前行

Stop
Anhalten
Arrêt
Parada
Páraz
Apstāšanās
停止
Behrēni
停止する
Остановка

Change direction
Ändern der Fahrtrichtung
Changement de direction
Cambia direzione
Cambio de sentido
Mudar a direção
Irányváltás
Kusribae virzienā maiņa
改变火车运行方向
Ubah arah
進行方向を変える
Изменение направления движения

Refuel
Aufanken
Plein
Carburant
Rifornimento
Repostaje
Reabastecer
Üzemanyag feltöltés
Degvielas uzpilde
加油
Isi ulang
Isi Semula
燃料を入れる
Заправка

Light on/off
Licht ein/aus
Lumière allumée/éteinte
Luce accesa/spenta
Luz
Luz ligar/desligar
Fény ki/be
Gaismu ieslēgt/izslēgt
Lampu hidup/mati
ライト オン/オフ
Включение/выключение света

Sound
Geräusche
Son
Suono
Sonido
Som
Hang
Skana
Suara
Bunyi
Звук

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Less challenging
Einfach
Moins difficile
Meno impegnativo
Más sencillo
Menor desafío
Kevésbé nehéz
Zema sarežģītības pakāpe
較低难度
Менее сложные

More challenging
Anspruchsvoll
Plus difficile
Più impegnativo
Más complicado
Maior desafio
Nagyobb kihívást jelent
Augsta sarežģītības pakāpe
較高难度
Более сложные



Teaching Material
Material für Erzieher
Supports pédagogiques
Matériel didactique
Materiale didattico
Material didático
Oktatási anyagok
Mācību materiāls
教材
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DIGI-ZUG

L'EXPRESS DU CODAGE

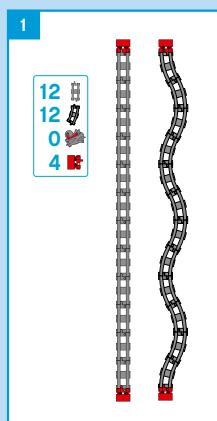
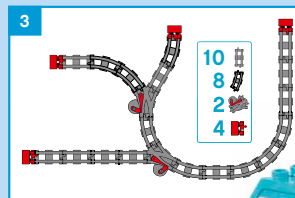
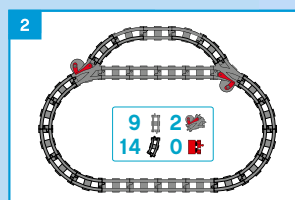
EXPRESSO DA PROGRAMAÇÃO

PROGRAM EXPRESSZ

ÁTRÁ PROGRAMMÉŠANA

デュプロ® プログラミングトレインセット

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