

# 2016 K'NEX EDUCATION CATALOGUE



WWW.KNEXEDUCATION.CO.UK

## WHY K'NEX®

The K'NEX Education<sup>®</sup> range has been designed to maximize pupil engagement in today's busy classroom.

WWW.KNEXEDUCATION.CO.UK FOR MORE



## FEATURES AND BENEFITS

#### DYNAMIC MODELS

Engage, excite and motivate pupils to learn. Encourage scientific inquiry, investigation, and experimentation through active participation.

#### **REPLICAS OF REAL WORLD MACHINES/STRUCTURES**

Help students to relate concepts to the world they live in.

#### EDUCATION STANDARDS ALIGNMENTS

Aligned to National Science, Technology, Engineering and Maths curriculum.

#### **ENQUIRY BASED CURRICULUM**

Challenges students to apply problem solving and troubleshooting techniques.

#### **ROBUST AND EASY STORAGE**

Easily constructed and deconstructed within lesson timings and compact to store.

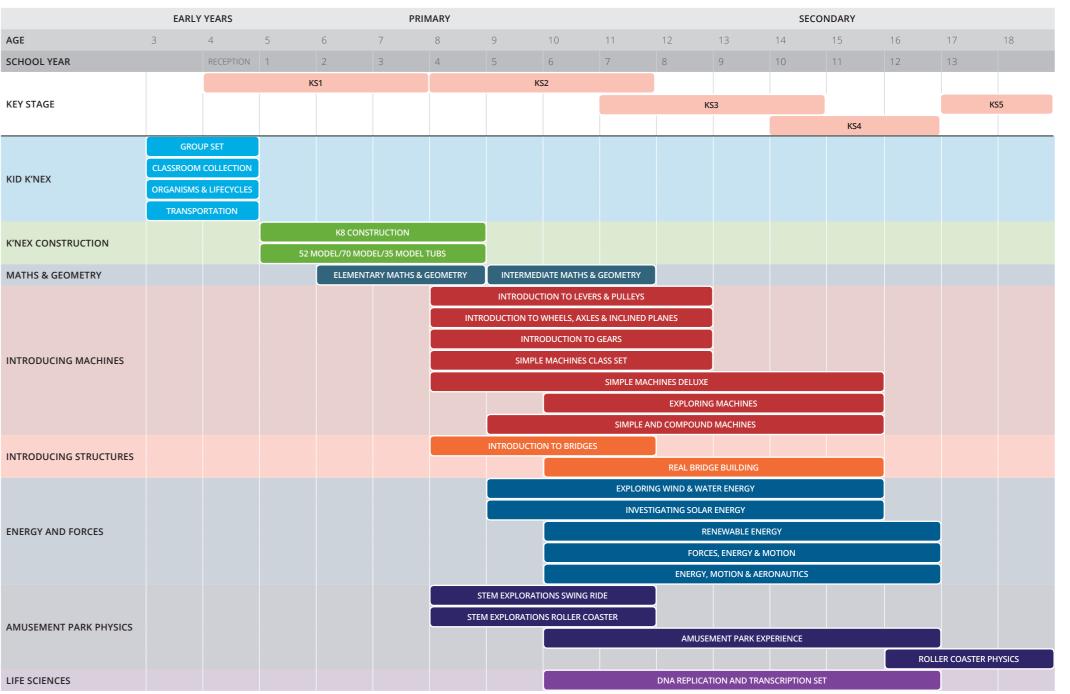
#### ENVIRONMENTALLY FRIENDLY POLICY

During our manufacturing process, 100% of our materials are recycled.

AGE

KEY STAGE

KID K'NEX



# KID K'NEX®

The KID K'NEX range has big, soft chunky pieces, and can be used by children with varying manipulative skills.

Vibrant colours and component





SPIDER



- Builds eight models, four at a time
- Suitable for small groups of eight to ten children building simultaneously
- Set includes 131 KID K'NEX parts, including eyes, ears and wings.

#### **KEY CONCEPTS**

- Colour and shape recognition
- Sorting and patterning skills
- Encourages manual dexterity and fine motor skills









FIREFLY







# KID K'NEX

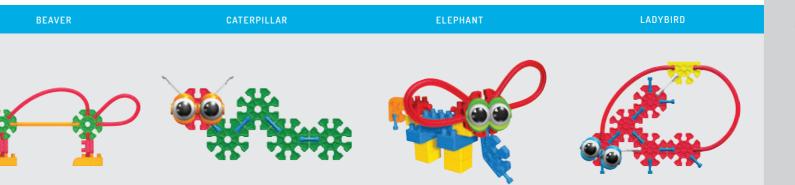
## ITEM NO. 78690A CLASSROOM COLLECTION



3+ YEARS

- **23 MODELS**
- 8-10 STUDENTS
- 267 PIECES
- Builds 23 models, eight at a time
- 1:1 correspondence cards to aid building
- Supports eight to ten children building simultaneously
- Includes 267 KID K'NEX pieces and blocks

- Colour recognition
- Stacking sorting and sequencing
- Pattern recognition and copying
- Fine Motor Skill Development & Practice
- Characters and Props for role play





# KID K'NEX

## ORGANISMS AND LIFECYCLES ITEM NO. 79580

- 3+ YEARS
- I8 MODELS
- 14 STUDENTS
- 8 198 PIECES
- Builds 18 models, 14 simultaneously
- Includes 198 KID K'NEX rods, connectors, fins tentacles, beaks and eyes
- Includes eight 2-sided 1:1 correspondence cards

#### **KEY CONCEPTS**

- Characteristics of Organisms
- Sorting and Sequencing
- Environments
- Food Chains and Food Webs
- Fine motor skills







# KID K'NEX

## ITEM NO. 78830 TRANSPORTATION

Builds 13 models, nine simultaneously
1:1 correspondence cards to aid child's

Supports eight to ten children building

 Includes 229 KID K'NEX pieces, including 36 wheels, ten of which are 'super sized' and six

3+ YEARS

13 MODELS

★ 229 PIECES

simultaneously

are truck wheels

**KEY CONCEPTS** 

motor skills

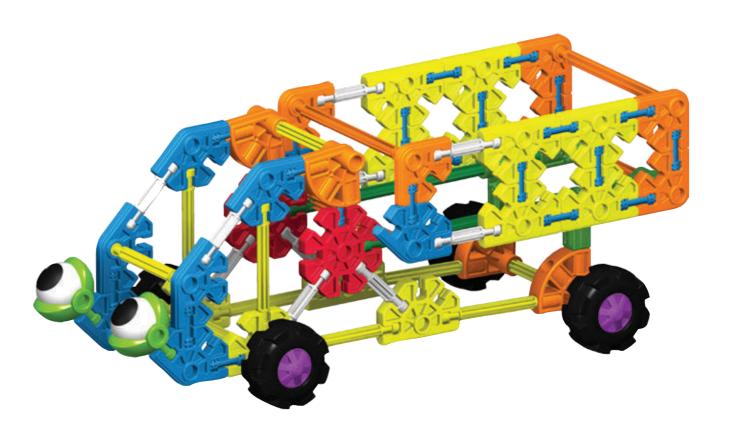
Colour and shape recognition

• Encourages manual dexterity and fine

Sorting and sequencing

8-10 STUDENTS

building of exciting vehicles





## CONSTRUCTION

## Children of all ages love to build...

Whether free form or following instructions K'NEX construction sets allow students to build and power models, helping them understand how they work.

## MOTOR PACK ITEM NO. 78910

Add more motors to your sets and bring them to life with this pack of two battery operated motors.



## K8 CONSTRUCTION SET ITEM NO. 79818



RACING CAR

BATTERY POWERED MOTOR





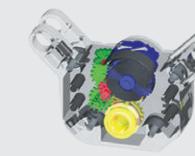
# CONSTRUCTION

#### FERRIS WHEEL

SET SPRING MOTOR

HELICOPT







- 5+ YEARS
- 80 MODELS
- **8–12 STUDENTS**
- 313 PIECES
- Includes two colour coded instruction books to build 80 models
- Builds eight dynamic motorised creations
- Packaged in two strong, stackable storage trays with snap on lids.
- Contains 1313 K'NEX Rods and Connectors, one spring motor and a power pack motor.
- Supports up to 12 students building simultaneously in teams of two to three

- Understanding how structures are made
- How to change and improve design of models
- Impact of materials on the robustness of structures
- Velocity and movement of vehicles



When teaching design and technology or key areas of the science curriculum, it is important to allow students to explore how structures and machines around them work.

Many students accelerate their learning through hands on exploration and experimentation The K'NEX Introduction to Machines range allows students to explore diverse areas of the curriculum from Mechanical Advantage to how products can be designed to make working lives easier.

## SIMPLE MACHINES DELUXE ITEM NO. 79565

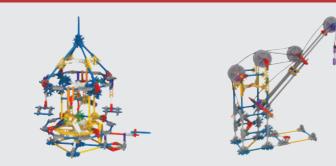


CAROUSEL \_\_\_\_\_

CRANE

LAWN MOWER

BICYCLE GEARS









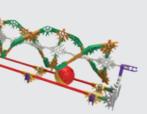
# INTRODUCING MACHINES

ARCHIMEDES SCREW

BALANCE

BIG BALL FACTORY

INCLINED PLANES









8+ YEARS
 60 MODELS
 10-15 STUDENTS
 3447 PIECES

The Simple Machines Deluxe set is designed to introduce students to the scientific concepts associated with simple machines — Levers, Pulleys, Wheels and Axles, Inclined Planes, including Wedge and Screw and Gears. As students build and investigate, they are encouraged to discuss and evaluate the scientific principles in action.

- Levers, pulleys, inclined planes, wedge, screw, wheel and axle and gears.
- Energy transfer
- Effort and resistance forces
- Mechanical Advantage
- Motion and Forces



## SIMPLE MACHINES CLASS SET ITEM NO. 79008

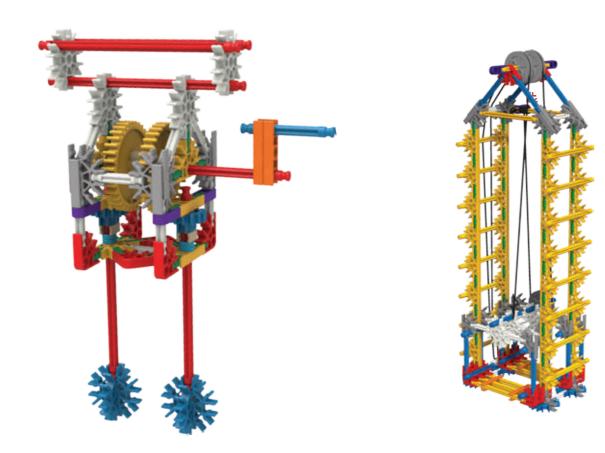
- 8+ YEARS
- I5 MODELS
- 24-26 STUDENTS
- 8 2176 PIECES

Bring the excitement of STEM to your students with this Classroom Simple Machines Set! Introduce students to the scientific concepts associated with simple machines - Levers, Pulleys, Wheels & Axles, Inclined Planes, Gears, Wedges and Screws. Builds 15 fully functioning models up to eight at a time.

#### **KEY CONCEPTS**

- Levers, pulleys, wheel and axle, inclined planes, gears, wedge and screw
- Making work easier
- Mechanical advantage
- Energy transfer







# INTRODUCING MACHINES

## ITEM NO. 78600 EXPLORING MACHINES





- 10+ YEARS
   30 MODELS
   ▲ 8-12 STUDENTS
- ₺ 1432 PIECES

The 30 different models featured in this set enable students to investigate a broad variety of mechanisms in more complex models. Four of each type of model can be built simultaneously. A 70 page comprehensive Teacher's Guide is included.

- Levers and pulleys
- Motion and forces
- Energy transfer
- Effort and resistance forces
- Classes of levers
- Mechanical advantage



## SIMPLE AND COMPOUND MACHINES ITEM NO. 77053

- 9+ YEARS
- I6 MODELS
- **2-3 STUDENTS**
- 8 352 PIECES

A smaller group version of the Exploring Machines set, this set is designed to increase students understanding of simple machines, and how they make work easier by investigating, exploring and experimenting with fully functioning simple machine models. Detailed Teacher's Guide with key concepts, terms definitions and learning objectives and lesson plans included. Build sixteen models, one at a time.

#### **KEY CONCEPTS**

- Effort and resistance
- Mechanical Advantage
- Force
- Six types of simple machine

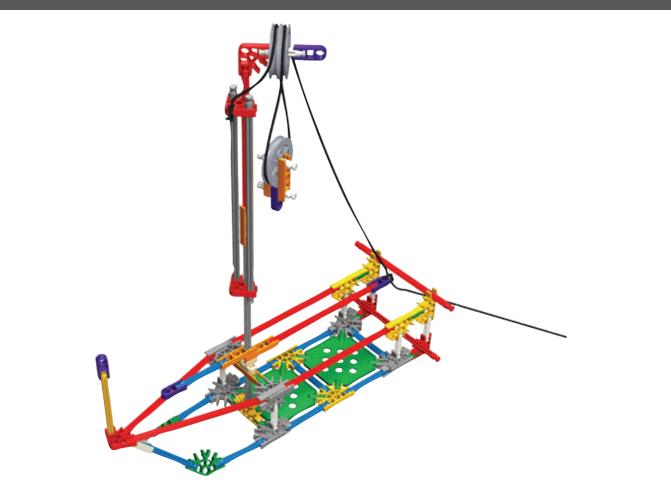






# INTRODUCING MACHINES

## ITEM NO. 78610 LEVERS AND PULLEYS



BLOCK AND TACKLE









8+ YEARS
 8 MODELS
 2-3 STUDENTS
 178 PIECES

Build eight real working models of 1st, 2nd and 3rd class levers and fixed, moveable and combination pulley systems, one at a time. Detailed Teacher's Guide with key concepts, terms definitions and learning objectives and lesson plans included. Packaged in a strong storage tray with moveable dividers and snap on transparent lid.

- Identifying three classes of levers and how they operate
- Key parts of levers: effort arm, resistance arm and fulcrum
- How levers function
- Fixed, moveable and combination pulley systems and how they function



## WHEELS, AXLES AND INCLINED PLANES ITEM NO. 78620

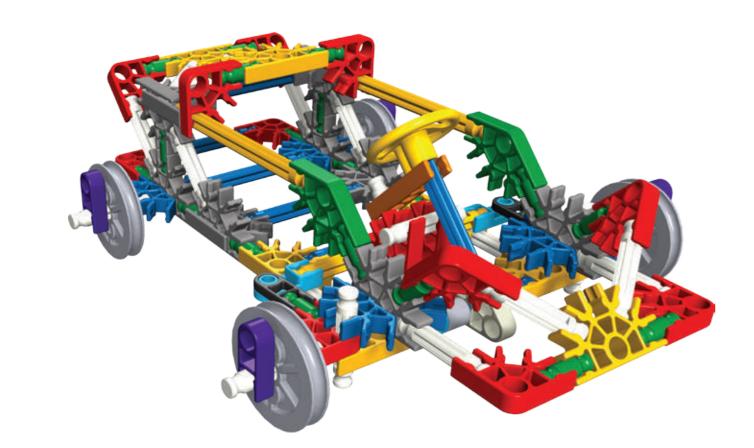
- 8+ YEARS
- **7** MODELS
- **2-3 STUDENTS**
- 8 221 PIECES

Seven real world examples of how a wheel turns an axle, how an axle turns a wheel, plus two levels of inclined planes and a screw and wedge. The set supports a team of two to three students. Build seven models, one at a time.

#### **KEY CONCEPTS**

- Identifying key parts of wheel and axle system
- Where wheels & axles are used
- Comparing and contrasting how these different machines function
- Identifying how inclined planes, screws and wedges make work easier

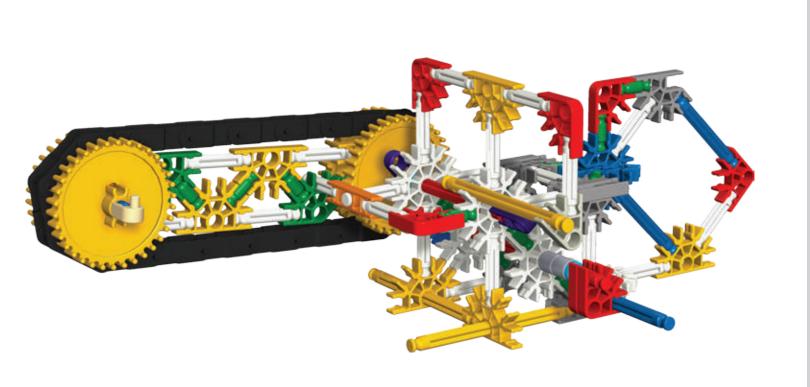






# INTRODUCING MACHINES

## ITEM NO. 78630 GEARS





- 8+ YEARS
   7 MODELS
   2-3 STUDENTS
   198 PIECES
- This set builds seven different gear models, including two spur gear, two crown gear and two chain and socket gear examples
- Models include Egg Beater, Blender, Chainsaw, Record player, Crank Fan, Car Window and Exercise Bike
- Set supports a team of two to three students working together, and includes a detailed Teacher's Guide with key concepts, terms and definitions

- What a gear ratio is and how it is calculated
- Determining how different gear configurations change the amount of applied force, speed or direction of movement
- Where different types of gears are used
- Identifying three different types of gear configuration



## INTRODUCING STRUCTURES

BRIDGES ITEM NO. 78640

The K'NEX® Bridges range is designed to support the Design and Technology, Science, Geography and History curriculum in schools.

The sets build replicas of real world bridges and feature all seven of the key bridge designs, showcasing real life examples of international bridges, bringing to life the engineering and maths concepts architects and engineers have to put in place to build robust, durable structures. Teacher's Guides also explore the cost involved in constructing the bridges, and the part they have blayed in history.



- Builds 13 fully functioning replicas of seven key bridge types
- Detailed teachers guide with key concepts, terms and definitions included
- Supports Design and Technology, as well as Science Curriculum

#### **KEY CONCEPTS**

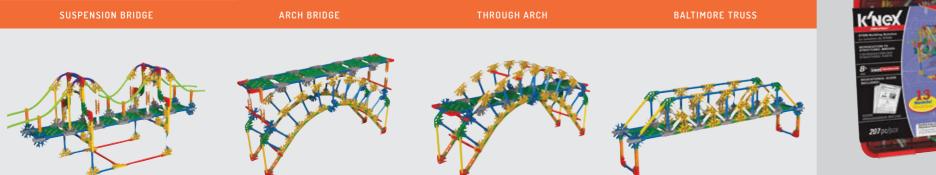
8+ YEARS

I3 MODELS

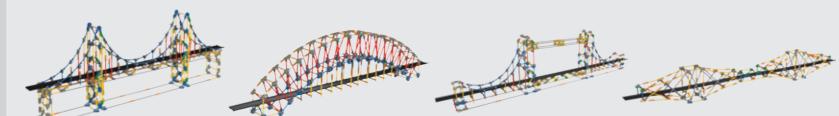
★ 207 PIECES

2-3 STUDENTS

- Defining the characteristics and purposes of seven bridge types
- Identifying key features of each type
   of bridge
- Investigating how different bridge types hold their loads
- Evaluating the strength and stability of each bridge type through experimentation







# INTRODUCING STRUCTURES

# FORTH BRIDGE GOLDEN GATE BRIDGE SYDNEY HARBOUR BRIDGE TOWER BRIDGE

## ITEM NO. 78680 REAL BRIDGE BUILDING

- 10+ YEARS
- **7** MODELS
- ▲ 6-8 STUDENTS
- ★ 2282 PIECES

This large set builds replicas of realworld bridges up to 1.8 metres long

- two at a time.
- Designed to assist students in their study of the history, function, structural design, geometry and strength of bridges
- Helps students investigate the physical properties of materials and their application in the placement of design and construction of bridges
- The models demonstrate seven key bridges: bascule, cantilever, cable-stayed, truss, suspension, arch and beam

- Defining the characteristics and purposes of seven bridge types
- Investigating how different bridge types hold their loads
- Determining and calculating costs involved in building a bridge
- Exploring the history of each of the realworld bridges



# ENERGY AND FORCES

The planning of energy resources and how we conserve and make better use of energy supplies is a hot topic in the classroom.

This range of K'NEX Education<sup>®</sup> products has been designed and explore how various forms of energy power everyday machines and structures around them. Key concepts covered in the range include renewable energy, energy storage, energy efficient technologies, force, motion, work and power. The hands on building of models and comparing performance of the designs encourage problem solving and experimentation.

## RENEWABLE ENERGY ITEM NO. 78976









# ENERGY AND FORCES



WATER POWERED MILL







10+ YEARS **9 MODELS** ▲ 6-12 STUDENTS ₭ 550 PIECES

The Renewable Energy set allows students to compare and contrast the power and efficiency that can be realized from wind, solar and water powered machines. Students generate electricity to operate models as they experiment with renewable energy systems. Builds three models at a time: One 1.38 V - 500 mA solar panel, three motors and power cords, and one capacitor for energy storage included.

- Renewable Energy
- Solar, wind and hydro power
- Energy: Radiant, Mechanical and Electrical
- Kinetic and Potential Energy
- Green energy/Clean energy
- Hydroelectric energy generation



# ENERGY AND FORCES

## EXPLORING WIND AND WATER ENERGY ITEM NO. 77051

- 9+ YEARS
- **7** MODELS
- **2**–3 STUDENTS
- ★ 288 PIECES

This small group version of the Renewable Energy set allows students to experiment with wind and water power. Students will investigate the science behind these energy sources and the technologies that help to make them useful. Builds seven wind and water powered models, one at a time. Supports two to three students working in small groups.

#### **KEY CONCEPTS**

- Wind and hydro power
- Energy storage
- Hydroelectric energy generation
- Energy efficient technologies
- Innovation and invention







# ENERGY AND FORCES

## ITEM NO. 77075 SOLAR ENERGY



SOLAR CRANK MAN







9+ YEARS
 3 MODELS
 2-3 STUDENTS
 129 PIECES

This small group version of the Renewable Energy set allows students to harness the energy of the sun and convert it into electricity to power K'NEX models. Builds three solar powered models, one at a time and supports two to three students working in small groups.

- Solar Power
- Energy storage
- Energy efficient Technologies
- Innovation and Invention



# ENERGY AND FORCES

## FORCES ENERGY AND MOTION ITEM NO. 78790

- 10+ YEARS
- I1 MODELS
- 12–16 STUDENTS
- ₭ 442 PIECES

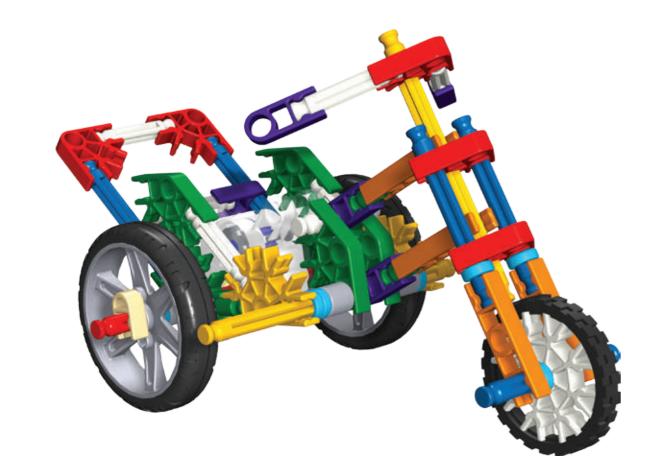
The Forces Energy and Motion set has been designed to encourage students to investigate and experiment using a variety of models. Hands on testing with various models and motors allows groups to compare and contrast what impact design has on speed and distance travelled. Set includes tyres and motors, battery, spring and fly wheel. Build eleven vehicles, up to four at a time.

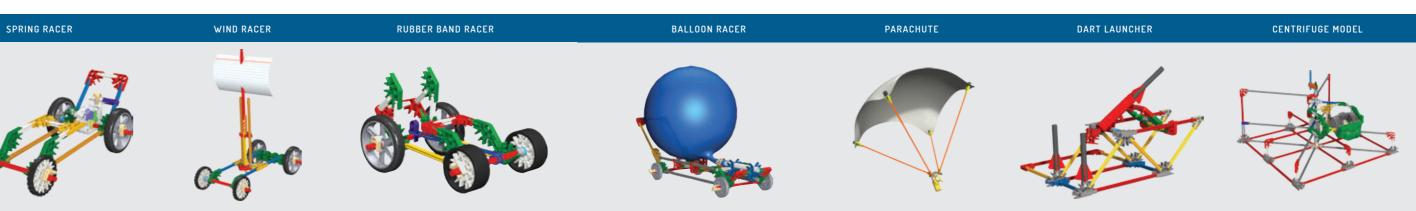
#### **KEY CONCEPTS**

- Energy transfer
- Velocity and Acceleration
- Potential and Kinetic Energy
- Newton's Law and the Mathematics
   of Motion
- Student designed experiments to encourage design challenges

BATTERY RACER

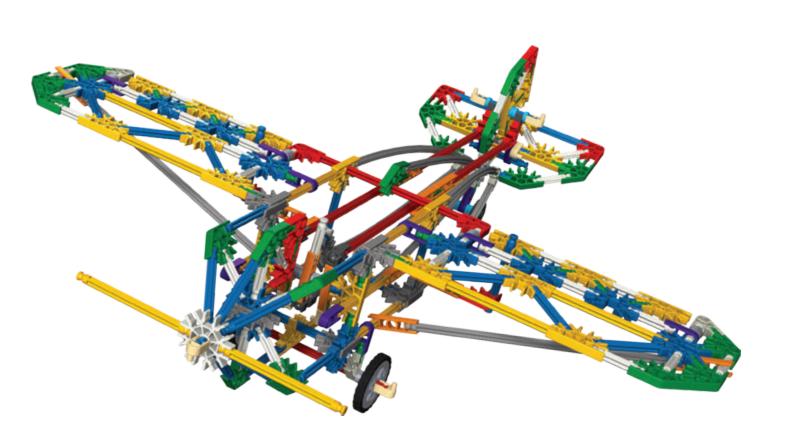






# ENERGY AND FORCES

## ITEM NO. 79621 ENERGY, MOTION AND AERONAUTICS



10+ YEARS
 9 MODELS
 6-9 STUDENTS
 1430 PIECES

The Energy, Motion and Aeronautics set allows students to investigate a variety of concepts related to Newton's Laws and aeronautics. These concepts include aeronautics as it applies to force and motion, as well as the effects of individuals who work in space. Models demonstrate: Newton's Laws, aeronautic and aerospace training devices, optical illusions, mechanical systems, airplane flight surfaces, parachute technology, projectile motion, and much more. Build nine models, up to three at a time.

- Newton's Laws, Ratios and Proportions
- The design Process /Engineering Design
- Measurement
- Testing , Evaluating and Modifying
- Data collection, graphing and analysis



## AMUSEMENT PARK PHYSICS

The K'NEX Education<sup>®</sup> Amusement Park range provides an opportunity for students to combine real world applications with key science, technology, engineering and maths principles.

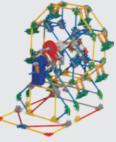
Students will be engaged and energized as they explore how these key concepts are applied on Amusement Park Rides.

## AMUSEMENT PARK EXPERIENCE ITEM NO. 78890





# AMUSEMENT PARK PHYSICS









- Amusement Park Experience opens up science and mathematical investigations into speed, distance and time, rotational motion and more.
- 2264 pieces build classic amusement park rides including a roller coaster, carousel, Ferris wheel, pirate ship, scrambler, wing and boom rides, plus ramps and half pipes.
- Build clothoid loops, circular loops, ball ramps.
- Explore gearing options for rotating rides
- Builds up to two models at a time

- Relationship between speed, distance and time
- Relationship between mass and speed
- Mass motion and energy loss
- Slope as a rate of change
- Displacement



# AMUSEMENT PARK PHYSICS

## STEM EXPLORATIONS SWING RIDE ITEM NO. 77077

- 8+ YEARS
- **3 MODELS**
- **2**–3 STUDENTS
- 🔁 470+ PIECES

Students will be engaged and energized as they further their knowledge and understanding of the science, technology, engineering and maths concepts associated with a real-life amusement park ride.

- Build a working swing ride, plus two additional models, one at a time
- Three experiments one for each model
- Battery-powered motor included

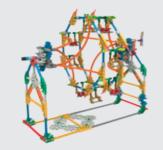
#### **KEY CONCEPTS**

- Relationship between Mass and Speed
- Gearing Up & Gearing Down
- Understanding Patterns
- Gather, analyze, and interpret data





FERRIS WHEEL

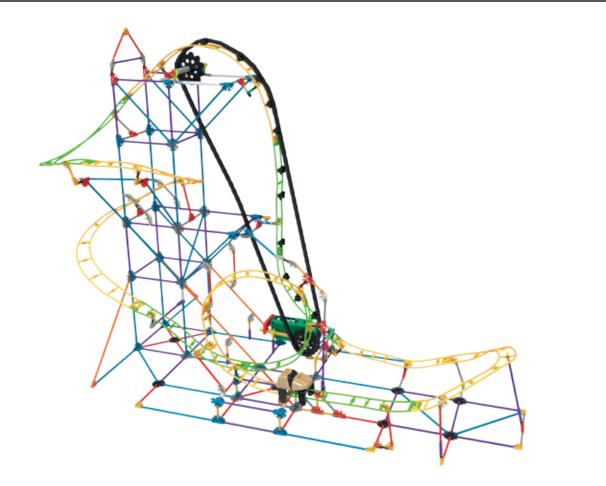




**BOOM RIDE** 

# AMUSEMENT PARK PHYSICS

## ITEM NO. 77078 STEM EXPLORATIONS ROLLER COASTER



HALFPIPE COASTER

INCLINE COASTER





- 8+ YEARS
- 3 MODELS
- **2-3 STUDENTS**
- ₭ 500+ PIECES

This set has been designed to engage and inspire students as they further their knowledge and understanding of how science, technology, engineering and maths concepts are used in the development of thrill rides.

- Build a working roller coaster, plus two additional models, one at t time
- Three experiments one for each model
- Battery-powered motor included

- Relationship between Speed, Distance
   and Time
- Variables in an experiment
- Gather, analyze, and interpret data



# AMUSEMENT PARK PHYSICS

## ROLLER COASTER PHYSICS ITEM NO. 78880

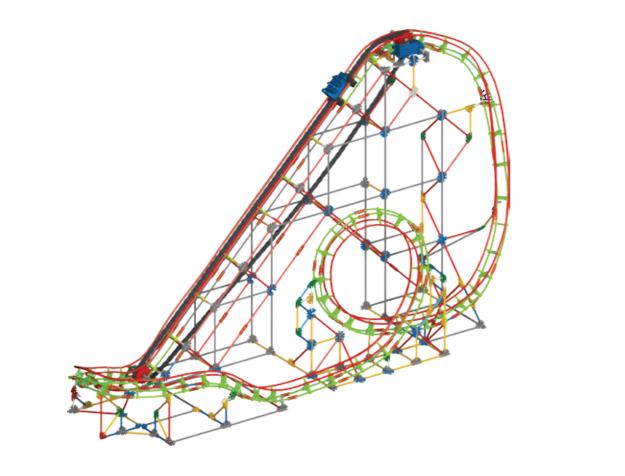
- 16+ YEARS
- I1 MODELS
- ▲ 6-8 STUDENTS
- ₭ 2037 PIECES

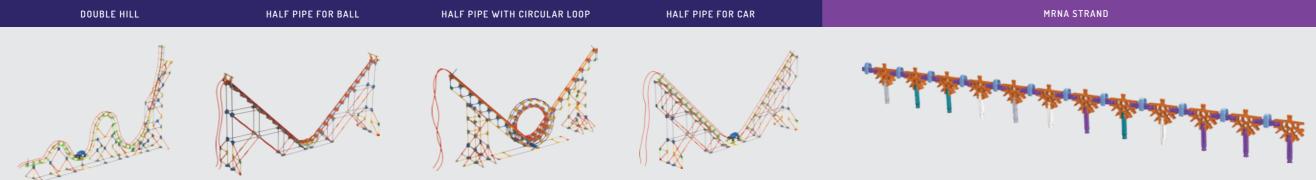
This set is designed to help students as they design and conduct scientific investigations, identify variables of the problem and adapt models to improve performance. Learn data collection, charting and reporting of experimental results. Build up to two lab stations at a time.

#### **KEY CONCEPTS**

- Measurement in 3D Trigonometry
- Time of Flight
- Uniform Acceleration
- Elastic Collision in two dimensions
- Centripetal Force and Acceleration
- Centripetal Force in a Vertical Direction
- Weightiness and Weightlessness
- The Physics of the Clothoid Loop





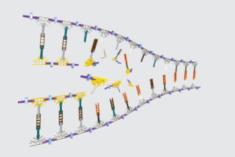


# LIFE SCIENCE

## ITEM NO. 78780 DNA REPLICATION AND TRANSCRIPTION



REPLICATION FORK



- 10+ YEARS I9 MODELS
- 2-3 STUDENTS
- ₺ 521 PIECES

This set is designed to aid in teaching the structure and function of the nucleic acid molecules that make up DNA and RNA. Build nineteen models, up to two at a time.

- Molecular basis of heredity
- Chemistry of DNA
- DNA Structure
- The Double Helix
- Enzymatic Control of DNA Process
- Semi-conservative replication of DNA
- Translation of DNA code
- Transcription and mRNA Reproduction



# MATHS & GEOMETRY

Students live in a 3D world, so it makes sense for them to connect with maths and geometry on a 3D level.

K'NEX<sup>®</sup> sets allow them to do just that, building their knowledge and understanding of key maths and geometry concepts.

## ELEMENTARY MATHS & GEOMETRY ITEM NO. 78720



6+ YEARS
 38 MODELS
 3-4 STUDENTS
 142 PIECES

An introduction to 2D and 3D shapes, symmetry and fractions for hands-on maths.

This 142 piece set builds 40 different 2D and 3D mathematic models (multiple models simultaneously).

#### **KEY CONCEPTS**

- Shapes, faces, angles & similarity, Symmetry Lines
- Segments and Rays Edges
- 2D & 3D Dimensional geometric shapes
- Sides, congruence
- Fractions, vertices





QUADRIDLATERAL

SQUARE PYRAMID

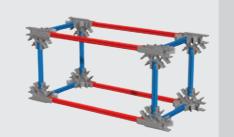
RECTANGULAR PRISM



OCTAGON

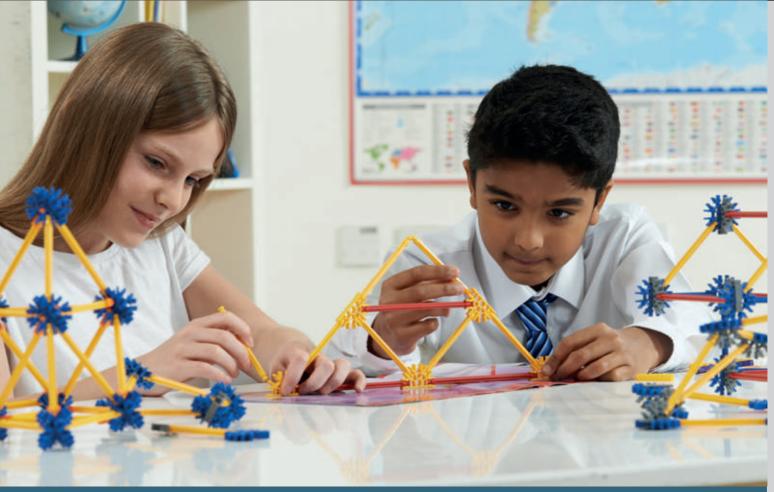






# MATHS & GEOMETRY

## ITEM NO. 79028A INTERMEDIATE MATHS AND GEOMETRY

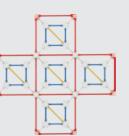


BEAVER

CATERPILLAR

ELEPHANT









LADYBUG

- 9+ YEARS
   95 MODELS
   8-16 STUDENTS
- ₺ 920 PIECES

Builds 95 K'NEX<sup>®</sup> Maths and Geometry models, up to four simultaneously.

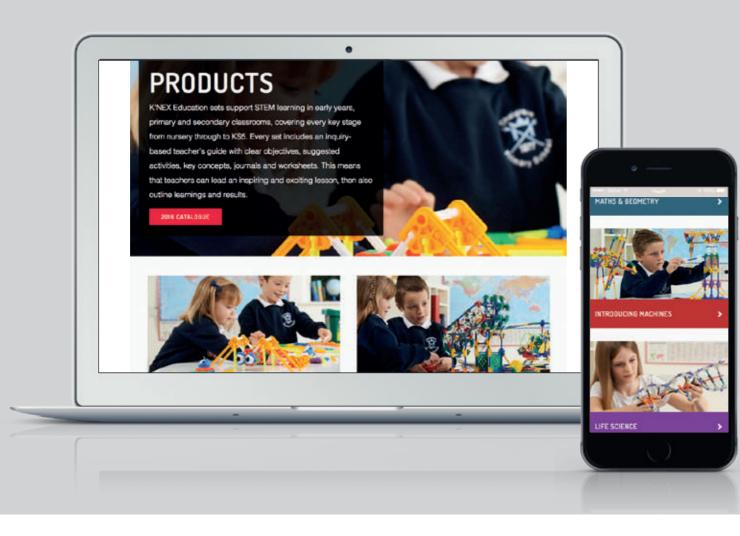
Designed to address critical mathematics concepts in the secondary school classroom, and provide instructional models that will enhance students' understanding of important concepts and algorithms.

- 2D and 3D Geometry
- Sequencing and Patterning
- Transformations
- Rotational symmetry in 3D
- Reflections, Congruence and Similarity



Visit the K'NEX Education website to find a wealth of resources designed to support you and your pupils in the classroom.

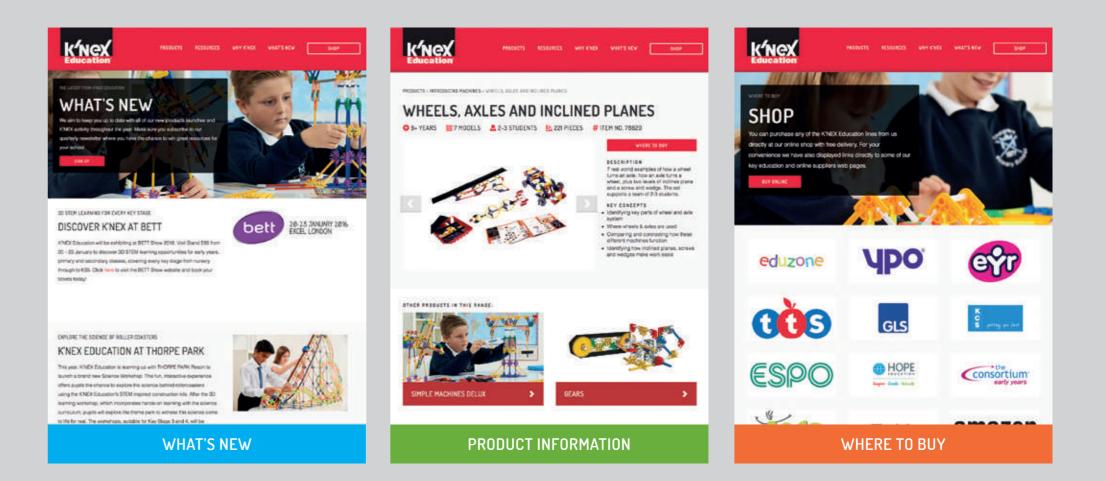
On this website, you will find:





- COMPREHENSIVE TEACHERS' GUIDES
- STUDENT BUILDING INSTRUCTIONS





INFORMATION ON INNOVATIVE SCHOOL WORKSHOPS

 CLEAR INFORMATION ON KEY STAGES AND GROUP SIZES

- CHANCES TO WIN 3D STEM LEARNING PRODUCTS
- LINKS TO BUY ONLINE



FOR FULL DETAILS ON OUR PRODUCT LINE AND TO REVIEW ALL OUR RESOURCES AND KEY STOCKISTS VISIT OUR WEBSITE VISIT WWW.KNEXEDUCATION.CO.UK



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