AIRBUS FOUNDATION
DISCOVERY SPACE

NORTH HERTFORDSHIRE COLLEGE

AIRBUS FOUNDATION

DISCOVERY SPACE

In partnership with North Hertfordshire College

EDUCATION
PROGRAMME

Be among the first to experience the Airbus Foundation Discovery Space in Stevenage. Our unique education centre provides a rich interactive education programme complemented by exclusive access to the Mars Rover Yard, where you can witness history in the making!

Our centre provides three state-of-the-art discovery zones:

LEARNING ZONE

For presenter-led hands-on learning opportunities.

INTERACTIVE ZONE

This zone includes interactive exhibits covering the themes of space, energy, forces and magnetism, materials and maths.

INDUSTRY ZONE

This zone concentrates on how the skills and subjects we offer link to industry, careers and the world around us. Providing viewing access of the Mars Rover Yard, where scientists will be putting the next Mars Rover through its paces.*

VISITING THE DISCOVERY SPACE

We want you to have a fantastic experience when you visit us.

Admission gives you automatic access to our interactive zone. You can also select an assortment of additional shows, workshops and make and take activities, from the pick 'n' mix menu.

The amount of activities available in one visit is dependent on time constraints, please call to discuss your requirements with a member of staff.

*Please check in advance to ensure access to the Mars Rover Viewing Gallery. The Mars Rover Yard is the actual test area for the next Mars Rover and will sometimes be required to perform its tests behind closed doors.

ADMISSION - BASIC FEE

Entry to facility, briefing, use of exhibits and debrief;

for example, £3 per child for group of 30 = £90

GIFT BAG - £1.50-£3 PER CHILD

This is a combination of three items from gift shop linked to the workshops/sessions. Each item has learning value as well as being awesomely fun. Visitor centre promo leaflet and discount voucher for future visit. £3 per child per show.

PICK'N'MIX - ADDITIONAL EXTRAS

To be selected and organised in advance as part of the booking procedure.

SCIENCE SHOW - £1 PER CHILD

- Entertaining interactive presentation
- Pre and post visit resource pack
- 30 – 45 min
- £1 per child per show

MAKE AND TAKE: ELEMENTARY - £1.50

- Presenter led, step-by-step instructions to produce a curriculum linked item
- Provides each child with a take-home item
- 30 – 45 min
- £1.50 per child per activity

INVESTIGATION WORKSHOP - £3

- Combination of specialist test equipment and low cost consumables
- Design, build, test, improve structure
- 60 – 90 min with a break
- £3 per child per activity

MAKE AND TAKE: ADVANCED - £2.50

- Presenter led, step-by-step instructions to produce a curriculum linked item, more material-heavy
- Provides each child with a take-home item
- 45 - 60 min
- £2.50 per child per activity

- Activity (basic/advanced/workshop) – 30 – 90min session. 5 minute briefing explaining the activity followed by presenter led instructions to complete activity;
- Science show – 30 – 45 min of exciting, interactive presenter led, science experiments and demonstrations. Volunteers always necessary! Whole group to participate simultaneously;
- Possible viewing of Mars Rover Yard;
- Visitor Centre/interactives and the opportunity to visit the shop.

TIMETABLE EXAMPLE

Timeframe for a visit would look similar to the following;

9.45AM ARRIVAL

Activity leader will meet group at the door; deposit coats and bags in cloak room facilities, use toilets and lead into learning zone.

9.55AM BRIEFING

Activity leader to introduce self and facilities and welcome visitors. Health and safety and rules of behaviour outlined, then introduction to specifics of the day.

10.20AM SESSION 1

Show, followed by a 15 minute snack and toilet break.

11.20AM SESSION 2

Interactives.

12.05PM LUNCH BREAK

Lunch and use of interactives.

12.50PM SESSION 3

Viewing of the Mars Rover from the gallery.

1.45PM SESSION 4

Activity.

2.30PM DEBRIEF

Collection of coats and bags. Activity leader to escort out to coach.

OUTREACH VISITS

For more information, or to book an outreach visit, give us a call on **01462 443050**.

SCIENCE
SHOWS

Our interactive science shows cover diverse topics including sound, magnetism and even the science of bodily functions! Our shows keep visitors on the edge of their seats and there are always loads of opportunities for audience participation. Each show lasts 30-45 minutes and can be adapted to your requirements.

COULD IT BE MAGIC?

Great fun for all ages. This show is a lucky dip of science tricks and trivia such as pushing a skewer through a balloon. Could it be magic? Do not be deceived, this is pure science.

KITCHEN CHAOS

A wonderful presentation based around kitchen science, using stuff that can be found in the home. Largely chemistry based and suitable for a wide range of ages.

OPPOSITES ATTRACT

A great way to either introduce or conclude the theme of magnetism.

SHINE A LIGHT

A great way to either introduce or conclude the theme of light.

STORIES AMONGST THE STARS

Using a star projector, we will look at the constellations and learn about the stories that give the stars their name.

THINGS THAT MAKE YOU GO EEUWW!!!

Fantastic show investigating bodily functions; taking a closer look at all the slimy, smelly, disgusting things that our bodies do every day to keep us well and healthy.

WALL OF SOUND

Awesome show exploring sound, where it comes from, how it travels and how we hear it. Non-stop noise from beginning to end.

WHAT'S THE MATTER?

Have a closer look at materials, scrutinize solids, look into liquids and get excited about gases. Through this show we classify materials and how we can change their behaviour.

WORLD IN MOTION

Highly interactive show investigating forces through Sir Isaac Newton's laws of motion. We'll be using rockets and a bed of nails, requiring lots of help from the audience.

BOOKABLE ACTIVITIES

MAKE AND TAKE ELEMENTARY

BALANCING BUTTERFLIES

This activity investigates forces, especially gravity and centre of balance. With investigative opportunities this beautifully basic activity is a great way to kick start or conclude a project. Requires some dexterity, suitable for all ages and abilities.

CURRICULUM LINKS - KST2 SUBJECT AREAS: S, T, E, M

BECAUSE THE LADY LOVES MILKTRAY

Investigating forces and the power of friction. Pupils make a figure and device to help it climb up string using friction to keep it in place. Some dexterity and fine motor skills required, more appropriate for younger pupils.

CURRICULUM LINKS - KST2 SUBJECT AREAS: S, T, E, M

BIGGEST BANGERS

Creating and testing paper bangers to see who can make the loudest noise.

CURRICULUM LINKS - KST2, KST3 SUBJECT AREAS: S, T, E, M

ICEBERG CHALLENGE

Each team is given a variety of cardboard sheets to make a an island, on which the whole team must stand. Activity leaders will gradually take away pieces of the island, making the area smaller and smaller. The teams must keep as many of their members on their island as possible, even a toe over the edge will mean that the member has been eaten by SHARKS!

CURRICULUM LINKS - KST2, KST3 SUBJECT AREAS: S, T, E, M

INTRODUCTION TO 3D DESIGN

A design session introducing pupils to basic concepts of 3D design, including aspects of maths and geometry. Pupils will receive print outs of their designs to take home.

CURRICULUM LINKS - KST2, KST3 SUBJECT AREAS: S, T, E, M

OBSERVATION STATION

A selection of Airbus objects are handed out to pupils, working in pairs or groups. They must consider the materials and structure of the object, try to work out what the object is, then create a short presentation to the rest of the group. After each presentation, the activity leader will reveal the true use of the object and offer a couple of facts.

CURRICULUM LINKS - KST2, KST3 SUBJECT AREAS: S, T, E, M

ORIGAMI SPACE SHAPES

Use maths to create stars, rockets and spheres by folding paper.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

PAPER STAND

Create a platform out of tubes of paper that has the ability to hold a person's weight.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

ROCKET MAN

An amazing workshop examining the science of rockets. We look at the shape and structure of rockets and how to make them fly efficiently. A pressure cylinder is used to launch paper rockets, built by the pupils, helping them achieve great height. Requires some dexterity.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

SCRATCH - GAME PROTOTYPE

We can offer a range of activities introducing scratch as a basic form of programming. This particular activity allows pupils to build their own prototype computer game. You can develop your game further using python or java on your return to school.

CURRICULUM LINKS - KST2 , KST3 *SUBJECT AREAS: S, T, E, M*

SEEING IS BELIEVING

Make a thaumatrope to demonstrate how the way we see things can create great optical illusions. Either by following a template or creating their own design, pupils can make their own thaumatrope to take home and astound their friends and family. Some dexterity required to create shapes, suitable for all abilities.

CURRICULUM LINKS - KST2 , KST3 *SUBJECT AREAS: S, T, E, M*

SLIME TO GO

We use simple household materials to make a brilliantly rubbery polymer. Investigating materials and chemical reactions, this workshop is great fun and provides a versatile take home product which can be used in further science experiments. A fabulously simple workshop for all abilities.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

SUNCATCHERS

This is a brilliantly creative activity, suitable for a wide range of abilities, allowing pupils to investigate light, colour and materials. Pupils will use a special liquid to produce decorations that look and feel like stained glass.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

TALKING HEADS

This can be a great cross-curricular link activity, as well as offering a great basic introduction to computer animation. It offers pupils to animate pictures of celebrities, to say anything they like! It can be used to create adverts or quote from literature, to fit in with other school projects.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

TANK

Teams must work together to tape pieces of newspaper end to end, to make a loop big enough for them to all stand inside (with the loop running over their heads and under their feet). The teams will then be "tanks" and will be given instructions and time to learn how to control their tanks. This session will finish with the tanks racing across the room, the winners being the team that gets there together, in the fastest time, with their tank track still intact.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

WACKY RACERS

We use balloons to demonstrate the third law of motion by designing, making and racing balloon powered cars. A great way to get excited about forces and put theory into action. Requires some dexterity and precision, some adult supervision is also required for younger pupils.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

WHISTLE WHILE YOU WORK

This activity sets up a great class investigation to take back to the classroom with you. Based on the concept that movement creates sound, you will be making items that require you to blow through them to make a whistling noise.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

YOUR FACE OR MINE

Using CSI face building software programme to utilise observational skills, offering great links to English and characterisation projects.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

BOOKABLE ACTIVITIES

MAKE AND TAKE ADVANCED

ALKA-SPLAT ROCKETS

For this activity we provide each child with a fabric bag and a rocket. We use fabric dye and a secret scientific ingredient to launch the rocket. The chemical reaction takes between 30 seconds to two minutes and sends the rocket flying into the air, leaving a wonderful splatter of colour on the bag. Some motor skills required to participate, wonderfully amusing for spectators, adult supervision is required for younger pupils.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

BATH BOMBS

Learn about materials and scientific processes by creating beautifully aromatic bath bombs. Pupils will measure specific amounts and gain an understanding of the terms, soluble, dissolve, mixture and compound.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

CAUGHT ON CAMERA

A superb way of looking at light, materials and invention. Pupils will each make their own camera obscura, which will reflect light to project images onto a small screen. Offers great opportunities for follow up investigations on light, reflections and historical technology. Some dexterity required, with adult supervision, more suitable for KST2.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

DNA BRACELETS

This activity offers a great introduction to the subject of genetics and inheritance. Using a code created from amino acids, pupils will each make a bracelet that spells their name using coloured beads. Each child gets to keep both their bracelet and their decoding sheet, providing opportunities for further discussion of DNA. Dexterity and motor skills required.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

EARTH ORBIT

Create an ornery style model of the sun, earth and moon to demonstrate how they move relative to each other, the idea of day and night and why we can only see the moon at night.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

ELASTIC BAND ROCKET

Make slingshot style rockets to investigate forces, energy and projection.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

EYE-SPY PERISCOPES

This workshop explores light and reflection, making a nifty periscope to peer around corners and use in extended play and investigation. Some dexterity required, additional adult support may be necessary for younger pupils.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

HAIRY HARRY

In this workshop, the pupils will create a face using iron filings and magnets to arrange the hair. A very attractive way to learn about magnetic forces. Requires some dexterity and precision, adult supervision required for younger pupils.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

HONEY I SHRUNK THE SHRINKIES

Design your own key ring or magnet using plastic with an unusual property – it shrinks! Pupils are provided with a sheet of special plastic, on which to draw their very own design. Using special equipment, we will apply heat to the material, which will shrink it to 1/6 of its original size. Requires some fine motor skills.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

IMMA-BEE

A tricky activity providing great scope for investigation back in the classroom. This workshop examines the principles of sound being a product of vibration by creating a lasso-like device to produce a buzzing sound. Some motor skills required to participate.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

KALEIDOSCOPE EYES

A brilliant activity looking at light, colour and reflection using kaleidoscopes. Each child will make their own kaleidoscope to take home with them. Requires some dexterity and precision, adult supervision required for younger pupils.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

LIGHT UP BUG

A brilliant workshop investigating electricity and materials. Each child will create a bug with antennae that can detect whether a material can conduct electricity or not. If the material is right, the bug's face will light up. Dexterity and fine motor skills required.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

LIGHT UP ROBOT CARDS

A really enlightening activity to help clarify the importance of circuits. Each child makes their own greetings card, with an in-built circuit and switch. Great at any time of the year, but especially suitable in the lead up to public holidays. Dexterity and fine motor skills required.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

MAPPING THE SOLAR SYSTEM

Create a linear map of the solar system, demonstrating relative distances between the planets and the sun.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

MARS TOPOGRAPHY IN A TEST TUBE

This fantastic workshop helps to introduce the concept of the geography of Mars. Using layers of coloured granules, pupils are able to make their own cross section demonstrating common factors of terrestrial planets. Some dexterity required.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

MOON PHASE BOX

Create a "moon" in a box with light and viewing holes in the sides to demonstrate the phases of the moon.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

REPULSIVE ZOETROPES

For this activity pupils will be making a zoetrope, using magnets to reduce friction. A brilliant way to see magnetic forces at work.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

SOLAR SYSTEM REMEMBERALL

A map of the solar system using beads as a constant reminder of the different planets, their names, characteristics and the order in which they are removed from the sun.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

THE HAND

This is an excellent activity to help pupils begin to understand skeletal structure and its purpose. Each child will make their own moving hand, which will help them get a grip on how the bones and muscle structure works. Dexterity and motor skills required.

CURRICULUM LINKS - KST2 SUBJECT AREAS: S, T, E, M

THE LIGHT-FAN PLASTIC

Using 'polymorph', a smart material, we can mould shapes, which will cool and solidify to be made into a key ring. To this we add a special pigment which appears to be one colour during the day light, but changes colour and glows at night. A great way to investigate both materials and energy. More suitable for older pupils due to the use of hot water. Some motor skills required.

CURRICULUM LINKS - KST2, KST3 SUBJECT AREAS: S, T, E, M

BOOKABLE ACTIVITIES
INVESTIGATION WORKSHOPS

ANIMATION CREATION

This can be a great cross-curricular link activity, as well as offering a great basic introduction to computer animation. This activity offers pupils the opportunity to work in groups to create their own stop motion animation, working through idea development and storyboards, through to the finished product. This can be used to create animations to fit in with other school projects.*

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

BIG BANG INVESTIGATION

This workshop is all about investigating the link between movement and sound, as well as emphasising the importance of working scientifically. Pupils will make and test paper bangers, using a variety of papers, while measuring the volume of the sound.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

BLOOD PATTERN ANALYSIS

Use CSI skills to utilise maths skills such as measurements and finding averages. *

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

BUBBLES

A magical activity investigating bubbles; their shape, what they are made of and what is inside them. In this activity, pupils will test out a variety of bubble wands made in the session, using a special, strong bubble mix. Each child will need to bring an empty 500ml bottle, so they can take some bubble mix home with them. Suitable for all abilities.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

BUILD A BRIDGE

Design and create a bridge that will span a certain distance (1.5 metres minimum) and hold as much weight as possible. Pupils have to "buy" equipment to complete the challenge.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

BUZZ WIRE

This fantastic activity is a great way to investigate circuits and electricity, allowing each child to make their own buzz wire game to take home. We make the games from scratch, some trouble shooting may be required, but this will help the pupils to better understand conductivity. Dexterity, precision and fine motor skills required.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

CHAIN REACTION MACHINES

Each team has an inflated balloon placed/taped a certain distance from them. Their challenge is to burst the balloon without touching it. They must design and devise a mechanism that they can set off to burst the balloon.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

FLOAT YOUR BOAT

We use a water tank for this activity. Teams have to design, build and test their own "boats" to hold as much weight as possible. They must stick to budget and "buy" materials from a limited selection.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

HIGH SPEED RAIL RACER

This workshop allows pupils to investigate air resistance, acceleration and the effect of load on speed, by designing "racers" to compete on a high speed rail track.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

IMMA-BEE

A tricky activity providing great scope for investigation. This workshop examines the principles of sound being a product of vibration by creating a lasso-like device to produce a buzzing sound. Some motor skills required to participate.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

LAUNCH IT

Create a trebuchet to launch things accurately into the "mouth of a volcano".

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

MAGNETIC FIELD JAR

This activity would involve some general experimentation with different types and strengths of magnet with a variety of magnetic/non-magnetic materials. As a conclusion, the pupils will assemble their own 3D demonstration of a magnetic field.

CURRICULUM LINKS - KST2 *SUBJECT AREAS: S, T, E, M*

MARS ATTACKS

This is a great activity for teamwork, maths and ICT skills. Activity can be adapted to suit time frame and ability. Using Lego Mindstorms, pupils will devise and programme a Mars Rover to complete set challenges.*

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

ON A MISSION

This activity will involve programming and controlling mini Mars Rovers using Lego Mindstorms EV3. Pupils will analyse rock samples found during their mission, replicating the work of the ExoMars programme.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

PIT STOP CHALLENGE

We use balloons to demonstrate the third law of motion by designing, making and racing balloon powered cars. This workshop allows time and opportunity to learn more about resistance to forces. A great way to get excited about forces and put theory into action. Requires some dexterity and precision, some adult supervision is required for younger pupils.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

PRESSURE CYLINDER ROCKETS

Make paper rockets to be launched using pressurised air to investigate forces, air resistance and gravity.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

TRANSPORT TROUBLES

Based around the theme of balloon buggies, teams are given the basic idea of how to build a car chassis and provided with other materials to devise a propulsion unit. Their challenge is to create a method of propelling a vehicle, with a payload to travel a certain distance.

CURRICULUM LINKS - KST2, KST3 *SUBJECT AREAS: S, T, E, M*

**THESE ACTIVITIES ARE ONLY ABLE TO ACCOMMODATE SMALLER GROUPS AT A TIME*

MAKING A **BOOKING**

Our booking procedure is simple and trouble free, just give us a call on **01462 443050** between 9am-5pm on Mondays to Fridays or email **airbusdiscoveryspace@nhc.ac.uk**. If we can't answer your call, please leave us a message and we'll return your call as soon as we're able.

In order to make your booking, we'll need to know the following information. It would help us if you have this ready when you make your call:

- The date of your visit/outreach. Please have a couple of dates in mind, in case your first choice is fully booked.
- The times available for arrival and departure.
- The number of pupils in each session.
- The names of the shows or workshops you'd like to book. If you have questions about the options available or would like to know more about how to organise a customised event we'll be happy to chat to you about these.
- Your contact details including: address, phone number and email.
- Any other special requirements you may have e.g. if there are pupils with hearing or special educational needs etc.

What we'll do:

- Fill in your booking form over the phone.
- Send a copy of your booking form, risk assessment, service level agreement and invoice as confirmation of your booking.
- Contact you the week before your booking, to confirm all the details and make sure that you are happy with the arrangements.