Curnow School –Science OFFER

Our school recognises Science is important in providing a foundation & framework which inspires pupils to learn and engage in the world around them by gaining scientific skills which ultimately enable them to complete functional tasks within everyday life. All pupils (EYFS – P16) experience a breadth of Science & is of vital importance in our ambitious Understanding the World curriculum offer. How Science is studied is formally identified through personalised learning routes/ pathways determined by pupil learning need, EHCP outcomes, & assessment of learning outcomes (following baseline/ moderation). It is acknowledged that for some pupils we need to address their developing scientific needs and strive to provide them with explorative and sensory opportunities to support development of a greater understanding of their own bodies as well as the world around them which will be addressed via our **L2L** pathway/ offer where applicable. The more 'formal' subject specific teaching/ learning is achieved via our **R2L** strand which offers a breadth/ depth within the Science areas outlined via our LT planning (Yr2 – Yr 11) which is key skill led. As our pupils are at such different stages of learning we know they require highly differentiated teaching & learning approaches, therefore, differentiation within a whole class session is essential to our sequenced teaching delivery. The guiding principles which informs our Science offer are based upon the Quality of Education framework which judges the intent, implementation of our sequenced Science curriculum & its impact upon their learning via their developing knowledge & skills obtained which prepares them well for their next stage. The LGB measure the success of the school's Science curriculum via reports received by middle leaders & the HT which includes the self-evaluation regarding the QoE for Science leading to identified developments if/ as required; reports will additionally include the evaluation of the delivery of the curriculum (sequenced teaching of the curriculum) & the impact upon pupil's learning via the progress they make over time evidenced by the assessment we hold.

INTENT:	**IMPLEMENTATION: -** *Our school will implement a breadth of learning via long term planning identified securing delivery the main principles outlined below:*	**IMPACT**
To enable pupils to develop/ further develop their knowledge, skills and conceptual understanding of: • scientific knowledge and conceptual understanding • nature, processes and methods of science • uses and implications **To enable pupils to develop their skills to:** • Develop a lifelong love of science through exploration, sensory, hands on, practical and investigative teaching sessions throughout their school life. • Develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics. • Develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them	Science offers a breadth of learning personalizing approaches tailored towards each individual using robust assessment practices which secure high levels of differentiation. This approach enables pupils to build upon their knowledge (long-term memory) offering structured opportunities to progress in the key skills identified within the Science Curriculum. **R2L** Science is delivered via specific sessions promoting the development of key skills which are further explored through the three disciplines of biology, chemistry and physics. The specific core areas within Science identify the development of key skills which are delivered from Yr 2 – Yr 11 via long term planning ensuring all learning remains sequenced. The **L2L/B2L** offer examines the development of pre-requisite skills within Cognition & Learning, Sensory & Physical and Communication & Interaction with outcomes designed for each pupil woven through their timetable accessed through NC subjects. Personalized learning tar-	Pupils: • Make progress from their differing starting points & over time progress well within the key skills of Science. • Learning remains sequential & builds on long term memory and experience (prior knowledge & understanding – their current skills and abilities). • Are prepared well for the next stage; next steps secure challenge, promote resilience within all learning. • Enjoy their learning and engage well. • Begin to develop various ways of thinking; learn how to investigate and solve problems as well as communicating these ideas. • Develop an understanding and knowledge of scientific ideas, life processes and skills alongside physical processes through explo-

to answer scientific questions about the world around them. • Be equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future. • Develop a secure and in depth understanding of scientific processes whilst working through the key skills of: observing, comparing, classifying, prediction, estimating, measuring, communicating and concluding. • Develop and practice many different skills and attributes. These include communication skills, collaborative skills, team working and perseverance, as well as reasoning and problem solving skills.	gets are designed using EHCP outcomes, Engagement Steps (summative assessment outcomes) & outcomes identified via the pupil observational process adopted by the Trust. Our **Post 16** offer further encourages and develops pupils' skills within Science and focuses on using these skills more functionally and with purpose within their adult life.	ration of the environment and living things. Furthermore, pupils will gain an understanding of materials and their properties through objects and events, relating to every day experiences. • Discover why science is important in the world and how we use the skills during every day functional activities. • Further shape their own ability to think, learn, solve problems and make informed decisions. • Enable pupils to lead a life after school which is as independent as possible.

EYFS – Yr1	**L2L** **KS 1 (Yr2) – KS4**	**R2L** **KS 1 (Yr 2) – KS 4**	**Post 16**
Within our EYFS provision Science learning is delivered via the interest led approach used pursuing the EYFS areas of: • Knowledge & Understanding of the world • Physical Development • Communication & Language Our EYFS provision will be a secure foundation through learning which is planned around the needs and interests of each individual child; delivery of Science will focus upon promoting/ further developing pupil engagement, interest &	The Science curriculum will be taught and delivered through personalised learning outcomes. Using established observational frameworks and assessment outcomes (B_2 Engagement steps/EYFS targets) we will plan/ differentiate learning outcomes within any of the seven areas of engagement. Through such development we can build upon pupils' current skills, developing their knowledge and understanding to ensure learning becomes embedded within long term memory.	Once pupils personalised learning pathways have been identified (informed via prior assessment/ observational outcomes) those identified as working within the R2L pathway will work more formally within subject specific learning, which sequences the teaching delivery to develop pupils' Scientific skills through the breadth of study offered. Study will include pupils developing their working scientifically skills; observing, comparing, classifying, prediction, estimating, measuring, communicating and concluding, across the three core areas: • Biology • Chemistry • Physics Long term planning is identified across the school to ensure there is a range/ balance within the	Within Post 16 the teaching delivery of Science is delivered through the 3 strands of Work related learning, Independent life skills and health and wellbeing and relationships. Assessment is through our bespoke functional skills track back assessment for this Post 16 curriculum. Accreditation opportunities will continue through ASDAN Personal Progress units linked to the Post 16 Curriculum as well as through their Pegasus award.

early skill development which encourages them to: • engage with other people and their environment • develop their skills within communication, playing and exploring • develop and learn from relationships/ friendships • build their curiosity (child initiated learning) and enthusiasm for learning • begin to think critically to engage creatively		breadth of study offered & that learning is achieved via a continuum developing skills and knowledge accordingly. Personalised learning outcomes are derived from assessment ensuring learning remains part of a well-planned sequence. Pupils will experience a range of science activities delivered in structured, sequentially planned sessions featured within class timetables.	
Development of fundamental scientific skills within the breadth of the EYFS offer	Development of engagement skills to support and promote fundamental scientific skills.	Development of Scientific skills within the breadth of offer delivered via a key skills and knowledge-based approach; accreditation opportunities identified where these hold value/ purpose to the pupil	Development of functional scientific skills in preparing pupils for adult life.

Science – R2L Sequence of Learning (Key Stage end points)

Intent: All students will learn skills that enhance their scientific knowledge and conceptual understanding by working scientifically through the 3 core areas; biology, chemistry and physics. Science provides all students with the opportunity to explore, investigate, problem solve, communicate and think critically whilst preparing them to develop the functional scientific skills required for adult life.

EYFS/ YR1

By the end of EYFS/KS1 (Yr 1) pupils will:

- Have found out about themselves and the world through exploration, using all of their senses.
- Have learnt through stimulating environments that offer a range of practical activities which encourage children's curiosity and interest in early aspects of scientific enquiry.
- Begin to develop their skills around exploration, experimentation, observation, prediction, problem solving, critical thinking, decision making and discussion.
- Have had hands on experiences whilst developing their scientific enquiry and investigative skills.
- Have heard and be aware of scientific vocabulary whilst being encouraged to use it within their own communications.
- Develop their self-esteem and confidence by making their own decisions about what to investigate and how they are going to do it.
- Discuss and communicate their experiences and what they have found out.
- Encourage pupils to predict future findings, rehearsing and reflecting upon their investigations/knowledge

KS1/KS2

Building upon prior learning by the end of KS2 pupils will:

- Further develop their scientific knowledge and conceptual understanding of nature, processes and methods used within science.
- Begin to work scientifically, developing their skills within: observing, comparing, classifying, predicting, estimating, measuring, communicating and concluding.
- Further develop their exploration skills by using the appropriate senses to explore and investigate.
- Develop an understanding of cause and effect by experiencing & recognising that their actions have consequences.
- Observe changes and communicate what they have seen.
- Develop their skills of comparing, classifying and predicting.
- Develop their understanding of scientific vocabulary and their communication skills so that they can discuss observations, comparisons and predictions.
- Take part in practical activities and experiments that require doing and thinking skills.

KS3/KS4

Building upon prior learning by the end of KS3 pupils will have:

- Further developed their scientific knowledge and conceptual understanding of nature, processes and methods of science, required to understand the uses and implications of science.
- Further develop their skills of working scientifically by refining their skills within: observing, comparing, classifying, predicting, estimating, measuring, communicating and concluding.
- Widened their scientific knowledge by using their senses to explore and investigate various concepts more independently.
- Further developed their knowledge of linking concepts by being able to communicate & explain why an action has a consequence.
- Developed the ability to use estimations and measurements within practical experiences.

By the end of KS4 Pupils will have:

- Increased the breadth and depth of their experience, knowledge and understanding within science on their everyday lives.
- Harboured a positive attitude towards science by developing their confidence, independence, persistence and co-operation skills.
- Developed the skills to think and understand more abstract concepts, as well as the concrete and practical.

Post-16

Building upon prior learning by the end of Post 16 students will:

- Be able to use their scientific knowledge and understanding which has been embedded through the key skills; observing, comparing, classifying, predicting, estimating, measuring, communicating and concluding to enhance their lives as adults so they can complete functional tasks as independently as possible.
- Be able to use scientific skills in daily living activities and learning.
- Develop their scientific understanding through functional activities, for example cooking, constructing etc.
- Be able to select and safely use appropriate materials for specific purposes.
- Be aware of the effect their actions may have on the environment.
- Incorporate scientific learning in Work Related Learning activities.
- Increase the breadth and depth of their experience, knowledge and understanding within science.

- Develop the students' awareness of, curiosity and interest in, themselves and the world around them.
- Foster a positive attitude towards science by developing students' confidence, independence, persistence and co-operation skills.
- Experiencing/learning about a range of equipment using man made energy sources
- Develop knowledge and understanding of the natural and manmade world and its resources.
- Learning about and experiencing environmental projects.

Assessment of learning:

Pupils within Yr2 – Yr 11 will be assessed using the developmentally appropriate assessment system regardless of age/ stage of learning. Science will be formally assessed through the Trust's assessment cycle which will evidence pupil progress over time which will be kept in individual pupil non-core files; teachers will use the gathered data & formative assessment outcomes to inform future learning which secures challenge, structures and sequences learning ensuring learning is embedded well in long term memory; this process will also help teachers to identifying individual interventions where necessary.

Assessment of learning is undertaken each teaching session to ensure learning remains sequenced building upon prior learning (developing long-term memory). Teachers use formative & summative assessment to ensure all learning is informed by previous attainment (learning always remains part of a well-planned sequence regardless of skill set/ needs type of pupils)

- **EYFS – Yr1:** Assessment in our Early Years settings is obtained via B_2 Connecting Steps which records the achievements pupils make, covering the range from birth to the Exceeded Early Learning Goals (ELG) within the specific areas of Knowledge and Understanding of the World, Physical Development and Communication and Language.
- **L2L:** Pupils not yet engaged in subject-specific learning will access structured Science sessions securing equity in the subjects they access. L2L pupils will study Science through bespoke learning targets informed via an observational engagement profile & subsequent assessment outcomes (B^2 Engagement Steps) which may include IEPs, EHCP targets and therapy targets (in consultation with physiotherapists); these targets are delivered daily/ through the school week.
- **R2L:** Assessment is undertaken via our bespoke assessment, which covers all aspects of the National Curriculum framework for Science; Biology, Physics and Chemistry, ensuring there is a breadth and balance in the curriculum pupils study leading pupils, when ready, to begin to/ study for/ obtain qualifications outlined within the statutory assessment frameworks published by the DfE.
- **Post 16:** Curnow bespoke Functional Skills assessments. Students within the Post 16 classes will be additionally assessed using the learning outcomes identified within any accreditation/ qualifications systems used & via the modules of work addressed (in accordance to accreditation/ qualification pathways which secure all modules addressed hold meaning/ challenge for each student). The Post 16 offer will identify such accreditation.

EYFS B^2	**L2L**	**R2L**	**Post 16**
(EYFS – Yr1) Specific areas – Knowledge & Understanding of the world; Physical Development & Communication & Language.	B^2 Engagement Steps Personalised EHCP Outcomes	B^2 Progression Steps All Science areas are identified within our long-term planning – Yr2 – Yr11	Curnow Bespoke assessment – Yr12 – Yr14 WRL

Summative assessment framework: Pupil progress files – recording and reporting
Progress files/Non-core progress files are provided for all pupils; these are designed to celebrate each pupils' personal successes and achievements sharing such success with their families and the wider school community. Outcomes collated further inform the SPT moderation process; progress files are additionally used to secure structured conversations with parents during termly progress meetings and within the Annual Review of EHCPs.

Moderation: Moderation will be undertaken by the subject co-ordinator for this area to ensure teacher assessment demonstrates accuracy when determining pupil's progress ensuring all learning remains part of a well-planned sequence for each pupil. Outcomes following moderation will further inform the subject co-ordinators development plan for this subject area to ensure the teaching delivery of this subject is in accordance to the planned intent/ impact designed and staff are in receipt of the appropriate CPD to ensure this subject area is taught well. Baseline assessment for all pupils new to each school will scrutinise the accuracy of assessment undertaken securing accuracy in the planned sequence of future learning (next steps) ensuring subsequent target setting is accurate and demonstrates the appropriate challenge in what pupils are learning.