<u>Crowmarsh Gifford Primary PE curriculum 2022 – 2023</u>

National curriculum statements

Purpose of study

A high-quality physical education curriculum inspires all pupils to succeed and excel in competitive sport and other physically demanding activities. It should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. Opportunities to compete in sport and other activities build character and help to embed values such as fairness and respect.

Aims

The national curriculum for physical education aims to ensure that all pupils:

- develop competence to excel in a broad range of physical activities
- are physically active for sustained periods of time
- engage in competitive sports and activities
- lead healthy, active lives

Key stage 1

Pupils should develop fundamental movement skills, become increasingly competent and confident and access a broad range of opportunities to extend their agility, balance and coordination, individually and with others. They should be able to engage in competitive (both against self and against others) and co-operative physical activities, in a range of increasingly challenging situations.

Pupils should be taught to:

- master basic movements including running, jumping, throwing, and catching, as well as
- developing balance, agility and co-ordination, and begin to apply these in a range of activities
- participate in team games, developing simple tactics for attacking and defending
- perform dances using simple movement patterns.

Key stage 2

Pupils should continue to apply and develop a broader range of skills, learning how to use them in different ways and to link them to make actions and sequences of movement. They should enjoy communicating, collaborating and competing with each other. They should develop an understanding of how to improve in different physical activities and sports and learn how to evaluate and recognise their own success.

Pupils should be taught to:

- use running, jumping, throwing and catching in isolation and in combination
- play competitive games, modified where appropriate [for example, badminton, basketball, cricket, football, hockey, netball, rounders and tennis], and apply basic principles suitable for attacking and defending
- develop flexibility, strength, technique, control and balance [for example, through athletics and gymnastics]
- perform dances using a range of movement patterns
- take part in outdoor and adventurous activity challenges both individually and within a team
- compare their performances with previous ones and demonstrate improvement to achieve their personal best.

Swimming and water safety

All schools must provide swimming instruction either in key stage 1 or key stage 2.

Pupils should be taught to:

- swim competently, confidently, and proficiently over a distance of at least 25 metres
- use a range of strokes effectively [for example, front crawl, backstroke, and breaststroke]
- perform safe self-rescue in different water-based situations

Our curriculum intent

The aim of the PE curriculum at Crowmarsh is to ensure all students have access to a high-quality PE education and the opportunities that come with being part of an active lifestyle. We aim to develop each child's understanding of PE by promoting the physical and social skills needed to take part successfully and enjoy a range of sports. Throughout our curriculum, we hope to instil a love of being active and taking part in sports both casually and competitively. We aim to develop the key sporting characteristics and personal qualities such as fairness, determination, and sportsmanship as well as our school values.

Curriculum implementation

All students at Crowmarsh Gifford will take part in physical education lessons twice a week, including a weekly swimming lesson for Year 6 students.

Key stage 1 PE lessons will be given a lot of early attention and will be supplemented with specialist coaches coming into school to ensure that the youngest children are given the best possible chance to develop their skills, succeed and enjoy taking part in sports. This will keep students engaged in physical activity and partaking in sports as they progress through their school lives.

The curriculum at Crowmarsh Gifford takes a skills-based learning approach through a variety of sports to ensure all children can meet the requirements of the national curriculum and that children are familiar with a range of sports. The curriculum has been designed to ensure that the taught skills are progressive and are transferable between different sporting activities.

We will focus on fundamental skills such as agility, balance, and coordination in reception and Key Stage One before progressing these skills into more complex movements in later years. By focussing on the key skills of various sports and fundamental movements, children can learn to enjoy taking part in games and feel confident in their own abilities. Once children feel confident with their skills, they will begin to apply them to strategic and competitive games in later years. This structured approach to PE will enable confident and capable students in all aspects of sports and fitness. While teaching these key skills and strategic elements, we will also focus on the school values and ensure these are embedded in our PE lessons with a half termly focus on each of the values during PE lessons.

Crowmarsh Gifford CE Primary School - Physical Education curriculum 2022 The sports that children will cover throughout their time at Crowmarsh include:

- Rugby
- Football
- Frisbee
- Athletics
- Basketball
- Dance
- Gymnastics
- Rounders
- Cricket
- Volleyball
- Swimming
- Hockey
- Netball

Therefore, PE at Crowmarsh will:

- Be taught twice weekly with a clear focus on developing skills within sports
- Teach and develop the key fundamentals of movement to enable successful participation in all sports
- Ensure all skills and sports are progressive with a focus on individual needs
- Ensure all children can learn in a safe environment
- Ensure all children experience success in sports both individually as well as in a team
- Teach children to understand, apply, and create various rules for a variety of games
- Develop social and emotional skills
- Offer a range of extra-curricular sporting activities
- Teach the importance of the school values through participation in sport and PE lessons
- Offer a range of sports during PE lessons
- Offer a range of sporting opportunities outside of the school curriculum and encourage participation in sports.
- Offer a range of competitions both in-school and outside of school.
- Provide opportunities to experience sport at the highest level.

The PE curriculum will be measured in a variety of ways. This will include:

- Teachers and PE lead observing and assessing children performing taught skills throughout the year.
- Pupil voice question and answer sessions
- Prove it PE days
- Assessing the level of participation within school and outside of school

Curriculum Impact

Our progressive curriculum ensures that all children develop fundamental skills which are then applied to a range of sports. Children are motivated to further engage in sport in out of school clubs where they can continue to develop skills and a love of sport. By the end of Year 6, all children will be able to swim 25 metres and have the skills needed to keep themselves safe in water. Children know the importance of maintaining a healthy and active lifestyle now and in the future.

Curriculum overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
EYFS	FMS	FMS	FMS	FMS	FMS	FMS	
	Locomotor skills	Manipulative	Stability skills	Locomotor skills	Manipulative	Stability skills	
		skills			skills		
Year 1	FM	IS:	Invasion Games	: FMS application	FN	ΛS:	
	Locomot	or skills	Da	nce	Manipula	ntive skills	
	Gymna	astics:	FMS ap	plication	Multi	-Skills:	
	FMS app		Stabili	ty skills	Sports day	y activities	
	Stabilit	y skills					
Year 2	FM	IS:	Da	nce:	Athle	etics:	
	Locomot	or skills	FMS ap	plication	FMS	skills	
	Gymna	astics:		ty skills	Football:		
	FMS app		FN	FMS:		FMS skills	
	Stabilit	y skills	Manipula	ative skills			
Year 3	Netball	Dance	Gymnastics	Tag rugby	Athletics	Rounders	
Year 4	Frisbee	Gymnastics	Dance	Basketball	Athletics	Cricket	
		,					
Year 5	Hackov	Tog Bughy	Dance	Football	Not	 :ball	
Teal 5	Hockey	Tag Rugby	Dance	FOOLDall	INCI	.Dali	
					Athl	etics	
Year 6	Swimming	Swimming	Volleyball	Tennis	Athletics	Cricket	
	Hockey	Basketball				Rounders	

PE in key stage one and Reception class

Mastering the fundamentals

PE in the early years and key stage one setting has been designed to ensure the children develop their fundamental movement skills. These skills are essential as other more complex skills will be built on top of these skills in later years. Therefore, it is of vital importance that children in reception and key stage one have the chance to develop these skills early to enable successful participation in sports in later life.

The fundamental skills taught in reception and key stage one have been broken down into three different categories: locomotor, manipulative, and stability skill sets. Each child needs to have left key stage one with a good level of proficiency in each of the three categories. As the skills are progressive, they have been placed into tiers with tier one skills being easier to learn than tiers two and three. The fundamental movement skills are below:

Fundamental movement skills			
Locomotor skills	Manipulative skills	Stability skills	
Tier 1 Walking Running Jumping Hopping (either or both legs) Leaping Side stepping Tier 2 Swinging Sprinting Skipping Dodging Galloping Climbing Lunging	Tier 1 Catching (two handed) Underhand throwing Kicking (strong foot) Tier 2 Catching (one handed – strong hand) Striking with the hand Striking with object Shaking Tier 3 Two handed strikes Pivoting Overhand throwing Foot dribbling Kicking (Weak foot) Catching (one handed – weak hand) Hand dribbling - bouncing	Tier 1 Stretching Bending Stopping Balancing Tier 2 Landing Twisting/ rotating Turning Rolling Climbing (holds)	

It is important to note that while these key fundamentals skills are taught as the primary focus in Key stage one PE, it is every year groups' responsibility to ensure that these skills are taught, and issues addressed if gaps appear in a child's skill set. Planning must consider how these gaps will be addressed.

Teaching the fundamental movement skills

What each lesson will do

The fundamental movement skills may be taught in isolation or in combination with each other. Deciding on how to teach these skills needs to consider the ability and needs of your current cohort. For example, those children with little experience may be best suited to learning and practising individual skills while the more capable children practise a variety of skills in combination in a game setting. How these skills are taught is up to the individual class teacher. However, all PE lessons at Crowmarsh will incorporate the following:

- Revision of previous skills learned
- A clear lesson objective with achievable, differentiated targets for children based on their needs and current level of ability.
- A clear demonstration of the skills being taught with common mistakes or misconceptions addressed early.
- Ample opportunity for the children to practise the skills.
- Teachers and other staff observing and correcting errors in technique.
- An opportunity to challenge their current skill level with a challenge or demonstration of how they have improved.

Attainment targets per year group

The following targets are what the children should be able to do with regards to the fundamental movement skills. By the end of Key Stage 1, all children should be able to perform all movements with confidence.

Reception	Year one	Year two
 Children should recognise some basic movement vocabulary such as jump, run, catch, and throw. Children should be able to demonstrate a basic technique for most of the fundamental movement skills in tier 1. 	 Children should be familiar with the basic movement vocabulary in the fundamental skills lists. Children should be able to perform most skills on the fundamental movement lists. Children should be able to comfortably perform all movements in tier 1 	 Children should know the basic movement vocabulary in the fundamental skills lists. Children should be able to comfortably perform all movements in tier 1, 2 and 3 Children should be able to demonstrate how skills they have learned are applied to basic games.

Key Stage two PE

The key stage two curriculum also has a skills-based focus, but this focus shifts to the skills needed to access specific sports and games. Therefore, the skills are a lot more specific. Most sports in the key stage two curriculum are encountered multiple times and therefore gives children the chance to continuously develop their skill sets. This document sets out the key skills development for each sport that the children will need to know and develop along with clear end of unit expectations.

What each lesson will do

Each lesson will have similar expectations to key stage one and reception, with the following being essential to the structuring of a PE lesson.

- Revision of previous skills learned
- A clear lesson objective with achievable, differentiated targets for children based on their needs and current level of ability.
- A clear demonstration of the skills being taught with common mistakes or misconceptions addressed early.
- Skills are to be broken down into their smaller components and then brought together through effective modelling, manipulation, and practice.
- An opportunity for the children to practise the skills. Staff and students observing and correcting errors in technique.
- An opportunity to challenge their current skill level with a challenge or demonstration of how they have improved.

There are only two notable differences between the key stage one and two approach. Firstly, the inclusion of the children in correcting the technique of other children. As the children become more aware of their abilities and what correct technique is, paired or group feedback can be used more often. It also enables the children to be more involved in the skill development process.

The second is breaking down the more complex skills into smaller more manageable chunks. This is important for children to be able to correctly perform the technique. For example, a complex rugby pass using spin and power could be broken down as such:

- Place weaker foot forward with a slight bend in the knees and hips
- Rotate the trunk of the body by pushing off the back foot to generate power
- Swing arms forward from the side to thrust the ball forward using the rotational movement
- In one movement throw the ball forward at the end of the extension of the arms
- Hold the ball in an underhand / side grip and move hands on the release to cause the ball to spin through the air

Each of these small steps may take a while to master but are essential in performing the pass successfully. Breaking down the movements with the children will also help them to feel more confident with performing the movements.

Dance - Year 3, 4 and 5

Fundamental skill prerequisites

Walking, running, jumping, hopping, leaping, swinging, skipping, galloping, lunging, stretching, bending, stopping, balancing, landing, twisting/rotating, turning and rolling

Year 3 outcomes

- I can begin to improvise independently and with a partner to create a simple dance
- I can translate ideas from a stimulus into a movement with some support
- I can begin to compare and adapt movements and motifs to create a larger sequence
- I can use simple dance vocabulary to compare and improve work

Year 4 outcomes

- I can confidently improvise independently and with a partner
- I can begin to create a longer dance in a larger group
- I can demonstrate precision and control in response to stimuli
- I can begin to vary dynamics and develop actions and motifs
- I can begin to understand and use cannon, unison, mirror and side by side
- I can modify parts of a sequence as a result of self-evaluation
- I can use simple dance vocabulary to compare and improve work

Year 5 outcomes

- I can begin to exaggerate dance movements and motifs
- I can demonstrate strong movements through a dance sequence
- I can combine flexibility, techniques and movements to create a fluent sequence
- I can move appropriately and with the required style for the stimulus
- I can begin to show a change of pace and timing in my movements
- I can improvise with confidence and fluency
- I can modify parts of a sequence as a result of self and peer evaluation
- I can use more complex dance vocabulary to compare and improve my work

Gymnastics - Year 3 and 4

Fundamental skill prerequisites

Walking, running, jumping, hopping, leaping, swinging, skipping, galloping, lunging, stretching, bending, stopping, balancing, landing, twisting/rotating, turning and rolling

Year 3 outcomes

- I can compose ideas independently and with others to create a sequence
- I can copy, explore and remember a variety of movements and I can use these to create a sequence

- I can begin to notice similarities and differences between sequences
- I can use turns, skips, leaps, steps, jumps and spins while travelling in different ways
- I can begin to show flexibility in movements on the floor and on apparatus
- I can begin to develop a good technique when travelling, balancing and using equipment
- I can describe my work using simple gym vocabulary

Year 4 outcomes

- I can link skills with control, technique, coordination and fluency
- I can perform more complex sequences
- I can develop strength, technique and flexibility throughout performances
- I can create sequences using various body shapes and equipment
- I can combine equipment with movement to create sequences
- I can begin to use gym vocabulary to describe how to improve and refine performances

Tag Rugby - Year 3 and 5

Fundamental skill prerequisites

• Throwing / catching / running / sprinting / dodging / side stepping / pivoting / stopping

Year 3 outcomes

- Recognise and understand the key vocabulary linked to rugby
- I can recognise the game of rugby when it is being played
- I can catch the ball with a sweeping two handed grip
- I can throw the ball using a two-handed grip
- I can throw the ball using trunk rotation to generate power
- I can recognise the basic rules of rugby (only pass backwards, tries are scored by touching the ball down behind the line)
- I can defend against an attacker by taking their tag
- I can communicate my intention clearly to other players

Year 5 outcomes

- I can catch the ball with precision either in a sweeping grip or hand grip.
- I can throw the ball greater distances using trunk rotation, arm extension and the spinning ball technique
- I can run at speed with the ball comfortably
- I can defend against an attacker and get back into position quickly
- I can evade other players attempting a tackle.
- I can use tactics, strategies, and teamwork to get round the opposition

Football - Year 2 and 5

Fundamental skill prerequisites

 Walking, running, sprinting, lunging, side stepping, pivoting, kicking, foot dribbling, landing, balancing,

Year 2 outcomes

- I know which foot is my kicking or strongest foot
- I can kick the ball forwards with both feet
- I can control a ball coming towards me by trapping the ball
- I can pass to a teammate
- I can dribble with the ball

Year 5 outcomes

- I can control the ball when it is coming towards me with varying speed and direction
- I can pass with the inside of my foot over longer distances with accuracy and power
- I can shoot with the inside of my foot and laces
- I can dribble the ball with increasing speed and control
- I can use basic tactics such as a one two pass and crossing the ball
- I can communicate clearly with my teammates and offer support
- I can use my body to defend the ball
- I can defend against and tackle an attacker player
- I can volley the ball
- I understand the basic positions for a football match

Hockey - Year 5 and 6

Fundamental skill prerequisites

 Walking, running, sprinting, lunging, side stepping, pivoting, swinging, two handed striking, twisting/ rotating, turning, stopping, stretching, bending

Year 5 outcomes

- I know how to hold the hockey stick and understand basic safety nothing above waist height / ensuring it is safe to strike the ball / being aware of others striking the ball
- I know how to control the hockey stick by moving my hands for greater control
- I can stop the ball using a basic stopping action
- I can perform a push pass
- I can dribble the ball with increasing speed and control
- I can strike the ball with increasing power and accuracy
- I can communicate with my teammates
- Can I can use my skills in a team game and develop strategies to win

Year 6 outcomes

- I can perform the Year 5 outcomes with increasing skill
- I can tackle safely
- I can participate in larger team games
- I can cooperate with my team members, adjusting tactics and field positioning in response to the opposition
- I can use my understanding of hockey to develop new games and rules to play safely.
- I can create a skills sequence that can be taught to lower year groups

Basketball - Year 4 and 6

Fundamental skill prerequisites

Walking, running, jumping, side stepping, dodging, catching, pivoting, hand dribbling, bending, stopping, and turning.

Year 4 outcomes

- I can dribble and keep control of the ball
- I can pass and receive the ball
- I can begin to shoot the ball
- I can pass and dribble to create shooting opportunities
- I can begin to mark players on the other team

Year 6 outcomes

- I can refine dribbling and passing to create attacking opportunities
- I can develop marking skills
- I can refine attacking skills including passing, dribbling and shooting
- I can apply defending tactics in a game
- I can apply attacking tactics in a game
- I can develop skills in officiating games

Cricket - Year 4 and 6

Fundamental skill prerequisites

Walking, running, jumping, swinging, sprinting, catching, underarm throwing, striking with object, overarm throwing, stretching, bending, stopping and turning

Year 4 outcomes

I can understand batting and fielding

- I can begin to throw overarm and underarm with increasing accuracy
- I can catch the ball
- I can stop and return the ball
- I can retrieve and return the ball
- I can strike the ball with intent at different angles and speeds

Year 6 outcomes

- I can refine batting, fielding and bowling skills
- I can develop batting and bowling tactics
- I can refine stopping, catching and throwing the ball
- I can combine bowling and fielding to create and apply tactics
- I can apply attacking and defensive tactics
- I can begin to umpire and score in games

Rounders - Year 3 and 6

Fundamental skill prerequisites

Walking, running, jumping, swinging, sprinting, catching, underarm throwing, striking with object, overarm throwing, stretching, bending, stopping and turning

Year 3 outcomes

- I can throw underarm with increasing accuracy
- I can begin to use an overarm throw
- I can stop the ball and apply this in a game
- I can develop accurate batting thinking about where to hit the ball
- I can use basic fielding tactics

Year 6 outcomes

- I can develop fielding tactics knowing where players should be
- I know what happens if the batter misses the ball or hits the ball backwards
- I can make tactical decisions when batting
- I can apply tactics to games

Frisbee - Year 4

Fundamental skill prerequisites

Walking, running, jumping, leaping, swinging, sprinting, dodging, catching, pivoting, stretching, bending, stopping, twisting/rotating and turning

Year 4 outcomes

- I can throw a backhand pass and develop this to an advanced backhand pass
- I can perform a crocodile catch
- I can perform a pivot turn
- I can start to develop marking skills
- I can perform a fake throw and know when this might be useful
- I can apply the skills to games

Volleyball - Year 6

Fundamental skill prerequisites

Walking, running, jumping, leaping, swinging, dodging, catching, striking, throwing, stretching, bending, balancing, twisting/rotating and turning

Year 6 outcomes

- I know the ready position and return to it when watching the ball
- I am familiar with: fast catch volley, volley with set shot, dig shot and I know when to use these
- I know how to become a digger, setter and smasher
- I can show an understanding of space and my team
- I know the rules of serving and underarm serving techniques

Netball - Year 3 and Year 5

Fundamental skill prerequisites

Walking, running, jumping, side stepping, dodging, catching, pivoting, hand dribbling, bending, stopping, and turning.

Year 3 outcomes

- I can begin to accurately pass and receive the ball
- I can begin to use different types of passes
- I can develop and combine passing and moving into a space
- I can develop and combine passing and shooting
- I can develop footwork skills

Year 5 outcomes

- I can refine passing and receiving of the ball
- I can apply passing, footwork and shooting skills in a game
- I know how to defend in a game
- I can explore passing styles and know when to use each one
- I can create and apply attacking and defending tactics
- I can begin to officiate games

Tennis - Year 6

Fundamental skill prerequisites

Walking, running, jumping, hopping, leaping, side stepping, swinging, sprinting, striking with the hand, stretching, bending, stopping, landing, twisting/rotating and turning

Year 6 outcomes

- I can develop forehand and backhand
- I can apply forehand and backhand in game situations
- I can create space and control the game from the serve
- I can develop the volley
- I can apply the above skills to win a point
- I can play doubles and understand how to apply tactics to win a point

Athletics

Fundamental skill prerequisites

Locomotor skill tiers 1 and 2, Stability skill tiers 1 and 2, Manipulative skill tiers 1, 2 and 3

Year 2:

I can change speed and direction, linking running, jumping and throwing accurately.

Running:	Jumping:	Throwing:
 I can run at different paces, describing the different pace. I can use a variety of different stride lengths. I can travel at different speeds. I can begin to select the most suitable pace and speed for distance. I can complete an obstacle course. I can vary the speed and direction in which I am travelling. 	 I can combine different jumps together with some fluency and control. I can jump for distance from a standing position with accuracy and control. I know that the leg muscles are used when performing a jumping action. 	 I can throw different types of equipment in different ways, for accuracy and distance. I can throw with accuracy at targets of different heights. I can adapt throwing techniques to achieve greater distance.

- I can run with basic techniques following a curved line.
- I can maintain and control a run over different distances.
- I can watch performances.
- I can give feedback.
- I can talk about the differences between my work and that of others.
- I can explain what is needed to stay healthy.

Year 3:

Running:	Jumping:	Throwing:
 I can show a difference between sprinting and running. I can identify and demonstrate different techniques that affect my performance. I can focus on using arm and leg action to improve sprinting technique. I understand the importance of adjusting running pace to suit the distance being run. I can begin to combine running with jumping over hurdles. 	 I can use one and two feet to take off and land with. I can develop an effective take-off for the standing long jump. I can develop an effective flight phase for the standing long jump. I can land safely with control. 	 I can throw with greater control and accuracy. I can throw with accuracy and power into a target. I can show increasing control in their overarm throw. I can perform a push throw.

- I can watch, describe and evaluate the effectiveness of a performance.
- I can describe how a performance has improved over time.
- I know the importance of strength and flexibility for physical activity.

Year 4:

Running:	Jumping:	Throwing:	
 I can run over increased distance, managing pace. I can confidently demonstrate an improved technique for sprinting. I can carry out an effective sprint finish. I can perform as part of a relay, focusing on the baton changeover technique. 	 I can learn how to combine a hop, step and jump to perform the standing triple jump. I can land safely with control. I can begin to measure the distance jumped. 	 I can perform a pull throw. I can continue to develop technique to throw for increased distance. I can measure the distance of a throw. 	

- I can speed up and slow down smoothly.
- I can modify the use of skills or techniques to achieve a better result.
- I can watch and describe and evaluate the effectiveness of performances giving ideas for improvements.
- I can describe how the body reacts at different times and how this affects performance.

Year 5:

Running:	Jumping:	Throwing:
 I can accelerate from a variety of starting positions and select a preferred starting position. I can continue to practise and refine sprinting techniques for sprinting, focusing on an effective sprint start. I can select the most suitable pace for the distance and fitness level in order to maintain a sustained run. 	 I can improve techniques for jumping for distance. I can perform an effective standing long jump. I can perform an effective standing triple jump with confidence. I can develop an effective technique for the standing vertical jumpincluding take-off and flight. I can land safely with control. I can measure the distance and height jumped with accuracy. 	 I can perform a fling throw. I can throw a variety of implements using a range of throwing techniques. I can measure and record the distance of their throws.

- I can explain why particular skills or techniques have been used and the effect they have on performance.
- I can explain some safety principles when preparing for and during exercise.
- I know and understand the reasons for warming up and cooling down.

Year 6:

Running:	Jumping:	Throwing:
 I can build up speed quickly for a sprint finish. I can accelerate to pass other competitors. I can confidently and independently select the most appropriate pace for different distances and different parts of a run. I can demonstrate endurance and stamina over longer distances in order to maintain a sustained run. 	 I can develop the technique for the standing vertical jump. I can maintain control of each stage of the triple jump. I can land safely with control. I can measure jumps confidently and with accuracy. 	 I can perform a heave throw. I can measure and record the distance of throws. I can develop and refine techniques to throw for accuracy. I can continue to develop techniques to throw for increased distance.

- I can evaluate my own and others' work.
- I can suggest thoughtful and appropriate improvements.
- I can adapt skills and techniques to different challenges and equipment.
- I can use running, throwing and catching in isolation and in combination.