scottishathletics

NATIONAL COACHING SYLLABUS

SPRINTS & HURDLES EVENT GROUP STAGE

MOVEMENT DYNAMICS
Athlete Development


scottishathletics
Pitreavie
AAC
National Relay
Championships

Event Group Syllabus for Sprints & Hurdles

At the end of the stage, an athlete focusing on Sprints and Hurdles should be able to progress into the event specialisation phase, armed with the necessary development of skills and attributes/qualities to best prepare them for long term success at senior level.

It is imperative that the greatest degree of care is taken in all aspects of physical training and athlete development. When reading, interpreting or implementing any of the information contained, you are fully responsible for the wellbeing and welfare of the athlete.

> You must have the physical competence to do the technical stuff and the technical qualities to do the tactical stuff…in that order (Giles, 2005).

Event Group Syllabus for Sprints and Hurdles

Development age (Indicative)	Male 12-15 years Female 11-14 years
Development phases	Athletes at this stage will probably begin to focus on a specific event group (in this case the Sprints & Hurdles) as they begin to realise where their potential and interests lie. At this point the athlete should focus both on sprinting and hurdling so as to develop a good all round event group specific conditioning and co-ordination base: Strength & Stability Development - - To develop adequate strength-power levels - To maximise technical competence - To reduce injury risk Sport Specific Skill Development - Teach hurdle & sprint movements, this allows athlete to develop complex co-ordination patterns. i.e. hurdling and sprinting are skills which require development Appropriate Conditioning (metabolic) - To develop the energy systems most relevant to the athletes event
General guidance	"Know the basics, Master the basics and Don't deviate from the basics" - V.Gambetta Develop a basic conditioning ability (Total structural strength, stability and range) that stays one step ahead of technical model development. Explore the development of Leg 'stiffness' (i.e. reactivity). Fit the program to the athlete NOT the athlete to the program. Get them to compete against themselves before competing against others. For all evnts get them physically literate, get them strong, get them to move (Run, Jump, Throw) fast and THEN get them fit, in that order. Develop sound sprinting technique first. - Teach them HOW before how far and how fast. - Mechanical before metabolic. • Introduce runs of high intensity over short distance • Develop speed over increasing distance • Introduce sub-maximal runs over increasing distances During this stage the technical model becomes unstable during the growth spurt. Therefore it is important to always go back to teaching the foundations. SPRINTING Early coaching centres on PAL (Posture, Arms and Legs) - develop the athletes awareness of good posture which is important for the development of mechanical efficiency. Get the foot contact and recovery right (Acceleration and Maximum Velocity postures) and the knee, hip and trunk should follow. If not then check the action from the top down. The longer the foot is on the ground the better chance of bad things happening. Develop the ability to run at a high 'cruising' speed.

Event Group Syllabus for Sprints and Hurdles

General guidance cont'd	HURDLES Develop Hip mobility and hurdle action. Develop adaptability by varying the running action - especially stride length. Develop rhythm and frequency through inter hurdle running. - In training move the heights and spacing's of the hurdles until the athletes are doing what you are looking for.
Progression of development (from previous phase)	It is important that coaches understand the Athlete Development process. The focus in terms of development of hurdling and sprinting related skills needs to change in accordance with the athlete's physical development needs. The focus on running mechanics should continue, as athletes will continually need to fine-tune their skills as they mature into their adult body shape. This is especially important for female athletes who undergo the greatest fluctuation in body shape during puberty.

Event Group Syllabus for Sprints and Hurdles

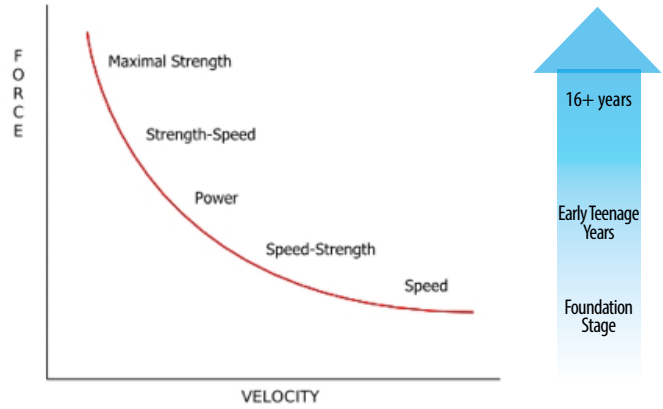
Delivery	Set up a positive learning environment, "no lists, no laps, no lines" - No queuing - Keep coaching cues brief (e.g. 'Step over the ankle; 'Punch the foot into the floor') - Lots of activities Coach to athlete ratio 1:12 (Max) - 1:3 ratio you are coaching the athlete 1:6 ratio you are coaching the group 1:12 ration you are coaching the event Format - Solving Movement Puzzles Guided Discovery - - Constraints learning (this requires the manipulation of task to achieve the desired outcome) - Implicit Learning Explicit Learning - Directive Coaching Progressive Content - - General to Specific - Simple to Complex - Slow to Fast - Unload to Load - Small amplitude to Large amplitude Progression - Based on athletes adaptation Only once they have earned the right What about the slow/fast learners and adapters? - These attributes must be accommodated in the session - Tools for Progression - General to Specific General - Multi-joint / plane / direction / speed / amplitude FOUNDATION movements Appropriate levels of work-capacity at differing combinations of energy-release mechanisms Different learning scenarios Fundamentals of Running, Jumping, Throwing, Kicking, Catching, Striking, Flotation Social and Mental development Specific - The types of muscle action must be similar to those used during competition (intra and inter-muscular) The structure of the movement must resemble that present during competition (motion of the limbs) The sensory information must resemble that present during competition The dominant energy system used during competition must be called upon The movement result must resemble that present during competition

Event Group Syllabus for Sprints and Hurdles
Physical Development

Posture & body alignment	Individual constraints are constantly changing due to growth and development therefore coaching needs to focus on the individual athlete more. The growth rate of the arms & legs will reach a peak prior to that of the trunk. This will cause a change in the centre of gravity and postural integrity exercises, through body management exercises, will refine and aid relearning in techniques. Functional (running & hurdling) postural integrity training introduced and (by the end of the stage) fully integrated into the athletes training. Implications - Requires a focus on the individual by monitoring on a regular basis of: - Segment lengths - Height - Weight Monitoring of these factors allows the coach to adapt any training sessions. Growing requires energy and metabolic resources so physiological demands may be increased during these periods, resulting in reduced performance in training and competition.
Agility, balance & co-ordination	Central nervous system is almost fully developed, with agility, balance & co-ordination fully trainable & rapidly improvable during this stage. Smaller muscle groups are becoming more developed. Co-ordination and technique drills should be used to continually develop co-ordination, spatial awareness and kinaesthetic sense as body proportions change. This is not easy as it comes at a time when the athlete may begin to experience difficulties in co-ordination that can regress previously mastered skills. The coach needs to work with the athlete who is experiencing these co-ordination difficulties so they understand what is happening, and they do not become de-motivated, or lose confidence. Bend running and a variety of running surfaces are introduced.
Strength training	"It's not how strong you are, but how much you can use" At this stage strength training should be used to develop adequate strength-power levels, to prepare the athletes for the increasing forces they experience (absorb, stabilise and produce), as they develop. With the growing interest in youth resistance training, it is important for coaches to under stand the fundamental principles of normal growth and development. Because the training of young athletes is becoming more intense and complex, anatomical and physiological factors that may be associated with acute and chronic injury also need to be considered. Strength development to be considered in relation to the progression of the adolescent growth spurt, where the volume of training is managed during peak growth velocity. Weight lifting technique to be developed at the beginning of this stage, with technical proficiency achieved, providing the athlete has 'earned the right' by displaying the appropriate physical competencies. (See physical competency section). Therefore, movement efficiency and consistency comes before external load and any increase of intensity.

Strength training cont'd

Athletes have to encounter all aspects of the strength continuum while executed with good functional movement and technical competency:

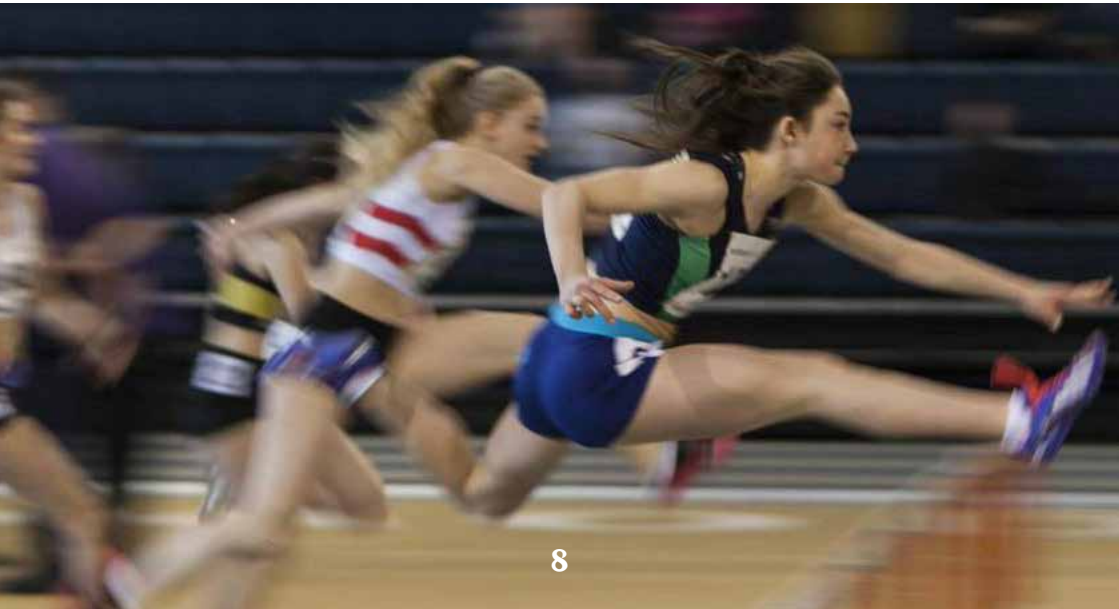


"As soon as you put a load on someone, you slow the movement down"

Strength is continued to be developed through multi-plane and multi-directional movements using body weight exercises and medicine balls.

Females become increasingly differentiated from males in terms of relative upper body strength.

Strength training has been consistently demonstrated to be crucial for the performance of all running events. If the coach is not competent to teach these skills, then they should endeav our to upgrade their individual coaching skills, or seek advice and guidance from competent professionals.



Event Group Syllabus for Sprints and Hurdles

Physical Development

Power training	Dynamic & Explosive movements are introduced and developed through multiple jumps, bounds and upper body movements providing the athlete is displaying appropriate movement consistency. (See physical competency section) - Static (In-place) Jumps - Horizontal bounds (bilateral and unilateral) - Box Jumps / Hurdle bounds* - Reactive bounds (Ground contact time <200ms) - Dynamic upper body movements * Height is determined by the athletes' ability to maintain technique and posture. If these are compromised the athlete is at risk of injury, and the height must be reduced. The prescribed volume and intensity is related to individual strength development, functional movement and technical competency. Introduction to complex work (strength exercises followed by explosive exercise). Power has been consistently demonstrated to be crucial for the performance of all running events. If the coach is not competent to teach these skills, then they should endeavour to upgrade their individual coaching skills, or seek advice and guidance from competent professionals.
Work capacity	"Work Capacity is not just the ability to withstand large training loads. It is the ability to maintain the quality and intensity of an activity." Speed endurance is based upon movement efficiency; what do you want the athlete to endure? Teach the athlete the action first, then build on that to provide movement resilience. Develop a strong cardio-respiratory system can be developed through other training modalities, for example cycling, swimming, circuit training, skipping. Develop musculoskeletal endurance (Movement consistency and Movement resilience).
Flexibility	Flexibility emphasised (very important in maturing individuals) and developed through dynamic exercise (Pre-workout) and static stretching post-workout, or as individual training sessions. Understanding of static & dynamics methods in relation to performance preparation, improving ROM & preventing injury; increased range must be applied to the movement immediately, in order to: - Increase the natural range of motion in joints - Enable the athlete to have effective technique - Decrease likelihood of injury due to imbalance in flexibility between body segments

Speed development

The primary method for speed development is execution of sound movement technique. Athletes should perform tasks at submaximal sprinting speeds (approx. 95%) to establish proper mechanics. Therefore, sessions should focus on quality not quantity.

Speed is developed throughout the year using the following training methods:

Competitive Exercises -
- Acceleration
- Maximum velocity
- Speed Endurance
- Specific Endurance

Specific Development Exercises
- Intensive tempo
- Extensive tempo

Method - Acceleration
Intensity - ≥ 95%
Distance - 0-60m
Recovery - Full (approx. 1min per 10m)
Duration - < 7s

Method - Maximum Velocity
Intensity - ≥ 95%
Distance - From 10m-40m Flying
Recovery - Full (approx. 1min per 10m)
Duration - < 5s

Method - Speed Endurance (achieve maximum velocity and maintain)
Intensity - ≥ 95%
Distance - 60-150m
Recovery - Full (approx. 1min per 10m)
Duration - 6-20s

Method - Specific Endurance 1 (achieve sub-maximum velocity and maintain)
Intensity - ≥ 95%
Distance - 150-350m
Recovery - Full or Incomplete recoveries (but retain ≥ 95% intensity)
Duration - 20-40s

Method - Intensive Tempo (develop anaerobic pathway)
Intensity - 76-94% Intensity
Distance - 75m-500m
Recovery - Incomplete recoveries
Duration - Time 10-70s

Method - Extensive Tempo (develop aerobic pathway)
Intensity - ≤ 75%
Distance - 50m-600m
Recovery - Incomplete recoveries
Duration - Time 10-120s

See Appendix A for speed definitions and further information on prescription of distances and intensities.

Event Group Syllabus for Sprints and Hurdles

Personal Development

Lifestyle	Athletes take increasing ownership of the '24hr athlete' concept. The development of life-skills and behaviours that are needed in and outside training and competition. Athlete takes increasing responsibility for rest, hydration health and hygiene. Introduction and development of the use of a training diary. "Where are your reps and sets for the development of attitude, commitment, discipline, humility and respect?"
Recovery and nutrition	Individualised pre and post exercise routines are introduced. Athlete aware that performance = training + recovery. Introduction to drug-free sport principles and practice.
Decision making	Coach to devise practices which continue to develop performer's independent thought and decision making abilities relative to situation. Athlete increases contribution to session content and outcome with support and guidance from the coach. Allow athletes to choose the level they wish to participate in, this promotes autonomy, leads to increased opportunity to feel competent and hence leads to increased intrinsic motivation.


46
National Age Group
Championships

Physical competency

(Based on physical competence assessment manual by Kelvin Giles MA, CertEd revised October 2011)

Please refer to Movement Dynamics Progressive Exercises Syllabus (PES) and Additional Movement Progressions for appropriate progression and regression exercises to help develop the physical competencies.

All round physical development is important to bullet proof the athlete from future injuries.

Every posture or movement pattern in sports specific actions, whether running, jumping or throwing demands that the athlete express some form of force production, force reduction and force stabilisation. This sequence of events occurs along the entire kinetic chain and demands degrees of multi-joint, multi-plane and multi-directional movement efficiency.

Therefore the premise underlying the functional movement screening (FMS) is that the athlete should be armed with the physical competence to carry out these sports-specific activities.

Through the FMS, athletes at this stage should be able to achieve the following competency levels in push, brace, squat, hinge and land.

Athletes must have achieved previous Competenct Assessments (Stages 1-2) prior to undergoing the following assessments:

General Physical Competency Assessment (PCA)

PES 4 - Lower Body
01 - Double Leg Squat

SQUAT -

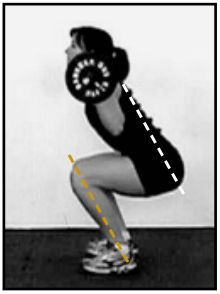
Loaded Squat - 10 reps with 25% Body Weight

Coaching Points -

- Appropriate Footwear
- Athlete performs 10 x parallel squats with a broomstick to ensure technique
- "Head Up, Chest Up, Butt Out, Heels down".
- Bar is held across top of the Shoulders and not on the Neck.
- Trunk stays as upright as possible with broomstick or bar aligned above Toes.
- Feet are a little wider than Shoulder width apart
- Heels must stay in contact with the ground at all times

Squat - Correct Trunk alignment.
Neck aligned with mid-Foot

Squat - Correct Trunk alignment.
Trunk and Shins parallel.



Executing all 5 points scores 5

- Depth - thighs parallel
- Ankle, Knee Hip Alignment
- Equal stance on both legs
- Heels Down
- Trunk in proper alignment; Trunk parallel to shins

PES 4 - Lower Body
04 - Single Leg Squat

Single Leg Squat to Parallel - Hold for 3 Seconds

Coaching Points -

- Bare feet
- From a single Leg balance.
- Lower to parallel Thigh, hold for 3 secs and return.
- "Head Up, Chest Up, Straight Back, Butt Out".
- Ankle, Knee and Hip aligned, with Hips square.
- Trunk stays as upright as possible with Neck aligned above Toes.

Static Squat Stance - Parallel

Executing all 5 points scores 5

- Correct depth
- Ankle, Knee and Hip alignment (Knee doesn't collapse in or Foot doesn't turn or collapse).
- Heel down
- Waistband level (Hip doesn't 'hitch' out)
- Trunk in proper alignment; parallel to Shins.

PES 4 - Lower Body
01 - Double Leg Squat
(Overhead series)

Overhead Squat - 10 Reps

Assess movement efficiency before attempting repetitions (movement consistency).

Coaching Points -

- Broomstick / light bar overhead, Arms straight.
- Arms in line with Ears.
- Hands just outside Shoulder width.
- Head up / Chest up.
- Feet at Shoulder width.
- Heels down (maintain).
- Butt out and Squat to parallel.

Overhead Squat Stance - Correct Depth

Main 5 Scoring Points (Depth).

Executing all 5 points scores 5

- Depth - Thighs parallel to the floor.
- Ankle, Knee, Hip alignment (Knees don't collapse in or Feet don't turn or collapse).
- Equal stance on both legs (Hips don't swing to favour one side).
- Heels down
- Back straight.

PES 4 - Lower Body
13 - Lunge
14 - Walking Lunge

LUNGE -

Overhead Walking Lunge - 10m

A unique test of function, balance, coordination and vertical stability where the athlete takes 10 slow walking lunge steps continuously with a broomstick / light bar held stable over head and with a slight pause at the standing position.

Coaching Points -

- Broomstick / light bar overhead, Arms straight.
- Arms in line with Ears.
- Hands just outside Shoulder width.
- Head up / Chest up.
- View from front and side.

Lunge - Correct alignment at mid-stride. Step over opposite Knee. Full extension of support Leg.

Lunge - Correct alignment at contact.

Lunge - Correct alignment - front view.
Ankle, Knee and Hip aligned.

Lunge - Correct alignment.
Waistband level.
Shin vertical at pull-through.

Main 5 Scoring Points.

Executing all 5 points scores 5.

- Step over opposite knee without any collapse at waist (waistband level)
- Step over opposite knee without support Leg flexing.
- Step over opposite knee without the Shin of the trail Leg turning out or in to get through.
- Ankle, Knee and Hip aligned at landing (Shin remains vertical).
- Land and take-off smoothly and in balance.

PES 2 – Stability
03 – Horizontal Stability

BRACE -

Lateral brace (Side Bridge hands) - 45 Seconds

Coaching Points -

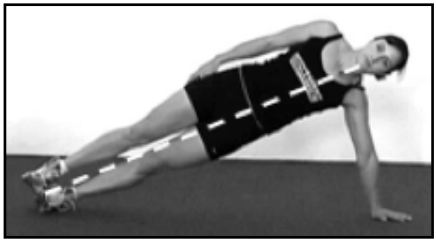
- From hand and foot.
- Support arm at 90^0 to the body (Elbow under shoulder).
- Free arm in-line with body.
- Body straight and in-line.
- Shoulder blades retracted – 'down and back'.
- Top hip stacked above bottom hip.
- Head in neutral position (head in-line with spine).
- Gluteus braced.
- Abdomen braced.

Athletes will stop when posture becomes distorted or excessive tremors occur.

Athletes are asked to stop if they feel any pain.

Time the athlete in the correct position.

Assess both sides.



Lateral Bridge -Hand - Correct Position.

PES 5 – Upper Body (1)
03 – Trunk Flexion

60^0 Static Sit up - 60 Seconds

Coaching Points -

- Sitting with bent knees the athlete leans back to 60^0 and holds the position. Feet are fixed.
- Abdomen braced.
- Back is kept straight with shoulder blades drawn 'down and back'
- Arms are kept across the chest or hands held at ribs. Keep elbows back to straighten back.
- Keep chin up, head in neutral position.
- Time the athlete in the correct position.

60^0 Static Sit up - Correct Posture.

PES 5 - Upper Body (1)
04 - Trunk Extension

BRACE -

Trunk Extension - 60 Seconds

Coaching Points -

- With Feet fixed the athlete hangs out over the edge of the bench from the Pubic Bone.
- Hands are clasped across Chest.
- Head in neutral position.
- Shoulder Blades must remain retracted and Gluteus contracted at all times.
- Back is extended to parallel to the ground.
- A neutral Spine position is to be held at all times.

Time the athlete in the correct position.
The athlete is asked to cease the
test if they feel pain at any time.

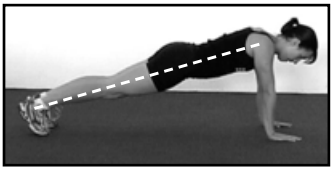
Back Extension - Correct Posture.

PES 2 - Stability
01 - Horizontal Stability

Front bridge (Prone) - 4 P Hands - 60 Seconds

Coaching Points -

- From Hands and toes
- Head in neutral position - looking down (head in-line with spine)
- Gluteus braced
- Abdomen braced
- Shoulder blades retracted - 'down and back'
- Body straight and in-line
- Athletes will stop when posture becomes distorted or excessive tremors occur
- Athletes are asked to stop if they feel any pain
- Time the athlete in the correct position



Front Bridge - Hands - Correct Position.

	STAGE 1 (Indicative 8 - 10 years)	STAGE 2 (Indicative 10 - 12 years)	STAGE 3 (Indicative 12 - 14 years)	STAGE 4 (Indicative 14 - 17 years)
SQUAT	**Squat** - Arms in front (Efficiency)	**Squat** - 10 reps (arms behind head) **Single Leg Squat** - (90˚) (Efficiency - Each Leg) **Overhead Squat** - (Efficiency)	**Loaded Squat** - (10 reps) (25% BW) **Single Leg Squat** - Hold for 3 secs (low position - thighs parallel) **Overhead Squat** - (10 reps)	**Loaded Squat** - (10 reps) (50% BW) **Single Leg Box Squat** - 5 reps (low position - thighs parallel) **Overhead Squat** - (25% BW) (Efficiency)
LUNGE	**Lunge** - Forward & Return (Efficiency)	**Lunge** - - End of year 1 - Forward & Return (5 reps each leg) - End of year 2 - Walking Lunge (10m)	**Overhead Lunge** - - End of year 1 - Forward & Return (5 reps each leg) - End of year 2 - OH Walking Lunge (10m)	**OH Walking Lunge** - 25% BW (10m)
BRACE	**Lateral Brace** - Forearm (Level 1) - 25s	**Lateral Brace** - Hand (Level 2) - 45s	**Brace** - (Level 2) - Lateral - Hand (45s) - 60^0 (60s) - Trunk Extension (60s) - Prone - 4 point hands (60s)	**Brace** - (Level 3) - Lateral - Hand (70s) - 60^0 (90s) - Trunk Extension (90s) - Prone - 4 point hands (90s)
PUSH/PULL	**Push Up** - - End of year 1 - Efficiency - End of year 2 - 5 reps **Lying Pull Up** - - End of year 1 - Efficiency - End of year 2 - 5 reps	**Push up** - (Level 2) - 10 reps **Chin Up** - End of year 1 - ≥ 1 rep (Efficiency) End of year 2 - 5 reps	**Push up** - (Level 3) - 15 reps **Chin Ups** - (Narrow Grip) - 5 reps Wide grip (Efficiency)	**Push Up** - (Level 4) - 30 reps **Chin Ups** - (Level 3) - Narrow Grip - 10 reps - Wide Grip - 5 reps
HINGE		**Hinge** - (Reverse deadlift) Level 2 - Lower to mid-Shin and return (Efficiency)	**Hinge** - (Reverse deadlift) Level 3 - Lower to floor and return - 5 reps	**Hinge** - (Reverse deadlift) Level 3 - Lower to floor and return - 5 reps (40% BW)
LANDING	**Landing** - Double to double (60cm) (Efficiency)	**Landing** - - Double to Single (60cm) - Single to Single (60cm) - Lateral Step & Stick (Efficiency)	**Landing** - - Single to single (100cm) - Lateral hop & Stick (Efficiency) - 5 Jumps (Efficiency)	**Landing** - - Slalom Reactive Hops (L&R) (>10 reps) - 5 hops (>11.00m)
NOTES	Assess the movement efficiency Athletes must achieve Desirable (Executing all 5 points)	Assess movement consistency as well as efficiency Athletes must achieve Desirable (Executing all 5 points)	Assess movement consistency as well as efficiency Athletes must achieve Desirable (Executing all 5 points)	Assess movement consistency as well as efficiency Athletes must achieve Desirable (Executing all 5 points)

Event Group PCA (Additional Event Group Specific assessments to be carried out in conjunction with Stages 3 and 4)				
EVENT GROUP	**SPRINTS & HURDLES -** **Wall 'A' Stance - Level 1** (Static and Dynamic) **Thomas Test 1 - (L&R)** - Thigh Angle 5^0 Below horizontal **Thomas Test 2 - (L&R)** - Shin Angle 80-90^0 **Hamstring** > 90^0 **Ankle Range - (L & R)** - > 12cm	**JUMPS -** **Wall 'A' Stance - Level 1** (Static and Dynamic) **Thomas Test 1 - (L&R)** - Thigh Angle 5^0 Below horizontal **Thomas Test 2 - (L&R)** - Shin Angle 80-90^0 **Hamstring** > 90^0 **Ankle Range - (L & R)** - > 12cm **Hanging Raises** - Straight Leg	**THROWS -** **Medicine Ball Rebound Throws** - ≥20 seconds **Standing Shoulder External Rotation** - (Vertical) **Shoulder Lift Off** - > 20cm **Bench Pull - Loaded** - (Efficiency) **Mini-Hurdle Hops - Square Pattern** - (Efficiency)	**ENDURANCE -** **Wall 'A' Stance - Level 1** (Static and Dynamic) **Thomas Test 1 - (L&R)** - Thigh Angle 5^0 Below horizontal **Thomas Test 2 - (L&R)** - Shin Angle 80-90^0 **Hamstring** > 90^0 **Ankle Range - (L & R)** - > 12cm

PES 6 - Upper Body (2)
09 - Vertical Pushing

PUSH / PULL -

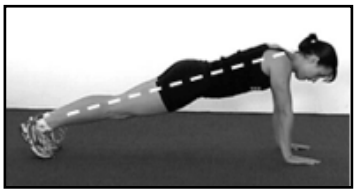
Push Up - 15 Reps

Coaching Points -

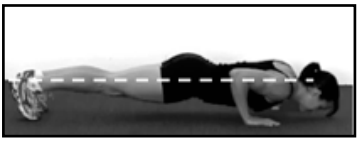
- Athlete sets the Shoulder Blades down and back and supports the weight on Hands and Feet. Hands placed in a comfortable position, Fingers forward.
- Full body braced.
- Lower the Chest to floor and return.
- Trunk remains fixed and straight at all times.
- Head in neutral position at all times.

Executing all 5 points scores 5

- Chest to touch floor
- Body remains straight & braced
- Head remains in neutral position (Head in line with spine)
- Shoulders remain 'down & back'
- Elbows tight to ribs



Push Up (Standard) - Correct Start Position.



Push Up (Standard) -
Correct Position from side. Straight Line.
Elbows Cloae to Ribs.

PES 2 - Upper Body (2)
02 - Vertical Pulling

Chin Ups - Narrow Grip - 5 Reps

Coaching Points -

- Under-grasp, Hands at Shoulder width.
- Full range of motion is to be achieved to count the repetition.
- Legs can be straight or bent but must remain in chosen position.
- Athlete pulls so that the Chin is over the bar and returns to the long hang position in control.

Chin Up - Start Position.

Chin Up - Correct Position for End of Pull.

PUSH / PULL -

Chin Ups - Wide Grip - Movement Efficiency

Coaching Points -

- Over-grasp grip.
- Hands wide outside Shoulder width. Full range of motion is to be achieved to count the repetition.
- Legs can be straight or bent but must remain in chosen position.
- Athlete pulls so that the Chin is over the bar and returns to the long hang position in control.

Wide Grip Chins - Start Position.

Wide Grip Chins - End of Pull.

Additional Movement Progressions
07 - The Hinge

HINGE -

Reverse Deadlift - Lower to floor and return - 5 reps

Coaching Points -

- Appropriate footwear.
- Light bar or Broomstick held at Shoulder width.
- Arms straight.
- Head Up, Chest Up, Shoulders 'down and back', Back straight.
- Heels down.
  - Lower Bar to floor.
  - Hinge at Hips - Butt out.
- Return by:
  - Extend Ankles, Knees and Hips and drive Hips to Bar.
  - Pull Shoulder Blades into a 'shrug' action.

Main Scoring Points
Executing all 5 points scores 5

- Shoulders stay 'down & back'.
- Back straight.
- Shoulders ahead of Hands.
- Ankle, Knee and Hip aligned. (Knees don't collapse in or Feet don't turn or collapse)
- Full extension at 'Pull' - Arms stay straight.

Head Up, Chest Up, Shoulders 'down and back'

Butt out to lower bar. Shoulders ahead of Hands.

Drive Hips to bar. Shrug Shoulders

PES 7 - Jumping
01 - Landing Fundamentals

LANDING -

Forward Hop and 'Stick' (L&R), Single to Single - 100cm

Coaching Points -

- Bare Feet (suitable surface)
- Toe at start line.
- Hop and 'stick' landing with Head up, Chest up, Butt out.
- Hip, Knee, Ankle alignment (Knee doesn't collapse in or Foot doesn't turn or collapse).
- Waistband level (Landing Hip doesn't 'hitch' out)
- Trunk aligned to Shins.
- Full balance throughout.
- Measure to Heel.
- Only measure the repetition that displays an efficient landing.

Hop & 'Stick' - Forward - Landing - Correct landing position. Trunk and Shins aligned. Butt out.

Hop & 'Stick' - Forward - Landing - Correct landing position from front

Lateral Hop & 'Stick' (L&R) - Movement Efficiency

Coaching Points -

- Bare Feet (suitable surface)
- Start sideways, outside Foot parallel to start line.
- Hop and 'stick landing' with Head up, Chest up, Butt out.
- Hip, Knee, Ankle alignment (Knee doesn't collapse in or Foot doesn't turn or collapse).
- Waistband level (Landing Hip doesn't 'hitch' out)
- Trunk stable.
- Full balance throughout.
- Repeat exercise for both sides.

Check the ability to hold position for 5 secs without deviation or distortion.

Lateral Hop Landing - Desirable Position

Event Group Syllabus for Sprints and Hurdles
Physical Competency

PES 7 - Jumping
07 - Jumping - Single Leg

5 Hops (L&R) **-** Movement Efficiency

Coaching Points -

- From a standing start the athlete hops for distance landing on the same Leg continuously for 5 hops - the last landing on two Feet.
- Head Up, Chest Up.
- Vertical stability and alignment through the Trunk, Hips and Knees must be attained.
- Check for any lateral deviation during hops.

5 Hops Start -
Correct Posture.

5 Hops Landing -
Correct Posture.

5 Hops Landing -
Correct Posture.

In all of the above jumping and landing assessments, executing all 5 points scores 5.

- Ankle, Knee and Hip Alignment (Knees don't collapse in or Feet don't turn or collapse)
- Bend at Ankle, Knee and Hips (Triple Flexion, Butt out)
- Waistband level (Landing Hip doesn't 'hitch' out)
- Trunk parallel to shins
- Full balance throughout

PES 1 – Flexibility
01 & 02– Lower Body

The following assessments are specifically related to the event group (Sprints and Hurdles) which must be assessed in conjunction with the above PCA's:

Event Group Specific (PCA) -

Wall 'A' Stance' - (Static and dynamic)

Wall 'A' Stance -
Level 1 Static & Dynamic

Wall 'A' Stance -
Level 1 Static & Dynamic (Rear View)

Static
- Arms ahead at Shoulder level.
- Moderate body lean.

Main 5 Scoring Points
- Raise Thigh so that Heel is level with opposite Knee.
- Full extension of standing Leg / Hip
- Straight line from Head to Ankle
- Waistband Level.
- Hold for 5 sec L&R

Dynamic
- Controlled sprint action - 5 cycles (10 contacts).
- Drive free Leg into ground - punch drive Knee up.

Main 5 Scoring Points
- Raise Thigh so that Heel is level with opposite Knee.
- Full extension of standing Leg / Hip at contact
- Straight line from Head to Ankle at contact
- Waistband Level throughout.
- Smooth, Balanced transitions

Athletes may progress to assessment level 2 (greater body lean) once achieved all main 5 scoring points at Level 1.

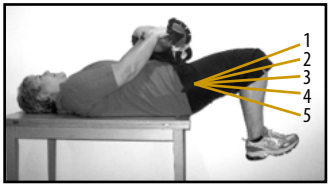
PES 1 - Flexibility
01 & 02 - Lower Body

Thomas Test 1 (L&R) - Thigh Angle 5^0 Below horizontal

Exercise	Desirable	Above Average	Average	Below Average	Poor
	5	4	3	2	1
Thomas 1- Thigh Angle	5^0 Below Horizontal	Horizontal	Horizontal + 5^0	Horizontal + 10^0	Horizontal +>10^0

Coaching Points -
- Butt at edge of bench.
- Grip Knee and Ankle to rotate the Shin
- Pull bent Leg to Chest – Flat Back.
- Head back.
- Tester lifts leg 'up and over' back to centre position
- Check from the side for Thigh angle.

Thomas Test 1 - Side View
Desirable Thigh position
Score - 5



Thomas Test 1 - Side View
Thigh Score - 1

PES 1 - Flexibility
01 & 02 - Lower Body

Thomas Test 2 (L&R) - Shin Angle $80\text{-}90^0$

Exercise	Desirable	Above Average	Average	Below Average	Poor
	5	4	3	2	1
Thomas 1- Shin Angle	$90\text{-}80^0$	$79\text{-}70^0$	$69\text{-}60^0$	$59\text{-}50^0$	$40\text{-}49^0$

Coaching Points -
- Butt at edge of bench.
- Grip Knee and Ankle to rotate the Shin
- Pull bent Leg to Chest – Flat Back.
- Head back.
- Tester lifts leg 'up and over' back to centre position
- Check from side for Shin angle.

Thomas Test 2 - Side View
Desirable Shin Position
Score - 5

Syllabus for Sprints and Hurdles
Physical Competency

PES 1 - Flexibility
03 - Lower Body - Hamstring

Hamstring (L&R) - Desirable Angle > 90°

Coaching Points -

- Head back.
- Free Leg straight, Toes vertical.
- Raise straight Leg slowly, Foot 'cocked' - check range.
- Free Leg must not move - keep Hamstring in contact with ground (Tester should hold free Leg down to stop any 'lift-off').

Hamstring Test - Desirable Range.

Exercise	Desirable	Above Average	Average	Below Average	Poor
	5	4	3	2	1
Hamstring	> 10°	85-90°	80-84°	75-79°	< 75°

PES 1 - Flexibility
04 - Lower Body - Calf

Ankle Range (L&R) - > 12cm

Exercise	Desirable	Above Average	Average	Below Average	Poor
	5	4	3	2	1
Ankle Range	>12cm	10-12cm	7-9cm	4-6cm	1-3cm

Coaching Points -

- Bare Feet.
- Hips square.
- Bend at Knee.
- Heel down at all times
(Tester should hold the heel to feel for any 'lift').
- Arch of Foot must remain high (see use of tape).
- Measure distance from big Toe to wall.

Ankle Range Test - Correct Position.

15

Event Group Syllabus for Sprints and Hurdles

Technical Competency

Running specific skills
(See General Guidance)

At this age, it is the best time for athletes to develop skills. Taking care of the technical elements involved with all aspect of the athlete's future development at this time, is time well spent. Athletes should be able to perform technical skills associated with the blue level in athletics 365.

Refer to 365 purple/blue coach support card 13 for technical competence

SPRINT START AND DRIVE PHASE - Acceleration -

Develop and optimise crouch start.
Introduce and develop block starts.
Develop good posture and balance in the 'Set' position with good arm spacing.
Develop reactions & stimulus-response.
Demonstrate active use of arms with a big split (of the arms) in initial steps.
Develop and optimise acceleration for sprints and hurdles.

Refer to 365 purple/blue coach support card 12 for technical competence

MAXIMUM VELOCITY - Full Flight -

Development of sound running technique at increasing speed.
Develop relaxed running technique with no visual tension.
Develop active and quick free leg with a 'down and back' motion before touchdown.
Develop strong support leg with no visual collapse of leg.
Develop a controlled bend with smooth transition on to straight running.

Hurdle Specific Skills

Refer to 365 purple/blue coach support card 14 for technical competence

HURDLE DEVELOPMENT -

Focus on hurdle technique not on hurdle endurance during this stage.
Encourage athletes to practise leading with both legs.
Develop a consistent pattern between hurdles.
Develop dynamic lead leg and active foot contact with a 'down and back' action.
Develop a short lateral trail leg.
Develop rhythm and running efficiency over increased height and distance (hurdles grid).
Develop optimal distance between hurdles to maintain three stride pattern (hurdle grid).

- Learn basic hurdle clearance
- Learn part skills of hurdle clearance
- Learn the basic three step rhythm over low hurdles
- Learn acceleration rhythm over first hurdle

Important for boys when teaching them the hurdles that you remember the skills required for high hurdling. Important to emphasise high hips at take-off and proper mechanics so that they use more hip at take-off rather than throw their upper body at the smaller hurdles.

Important to use a constraints led approach at this age. The athletes will mature at different rates and the variables in height, weight, strength and speed could be different between two athletes of the same age. Therefore, in training move the heights and spacing's of the hurdles until the athletes are doing what you are looking for, rather than always training over the race height and distance as the athlete will use sub optimal technique to make the space. This will be reinforcing bad technique that could be very hard to change once they have developed other performance characteristics and no longer require the sub optimal technique.

Relay Specific Skills

Refer to 365 purple/blue coach support card 15 for technical competence

RELAYS DEVELOPMENT -

Develop baton exchange with 'push pass' technique.
Develop baton change with non-visual exchange.
Progress baton changes unsighted with increased speeds.
Develop a basic check marker for the outgoing runner
Work within a team to develop performance.

Be aware, previous technical models become unstable during the growth spurt. Therefore it is important to always re-visit the basics.

Event Group Syllabus for Sprints and Hurdles
Planning

Planning	TYPICAL PREPARATION PERIOD* (Winter/Off-Season) Mon - Accelleration Development - 30m runs Multi Jumps and Strength & Stability Tue - Extensive Tempo & Hip Strength Circuit Wed - Rest Thu - Hurdle Rhythm, Intensive Tempo and Strength & Stability Fri - Rest Sat - Acceleration Development - Hill Sprints, Multi Jumps, and Throws Sun - Active Rest / Flexibility	TYPICAL PREPARATION PERIOD* (Spring/Summer, In-Season) Mon - Hurdle Rhythm, Speed Development and Strength & Stability Tue - Hurdle Mobility/Conditioning Wed - Rest Thu - Acceleration - From Blocks up to maximum of 4 Hurdles Fri - Rest Sat - Compete Sun - Rest
	SESSION EXEMPLAR - Monday Acceleration Development, multi-jump and Strength & Stability Development Warm Up (Warm up should incorporate any physical competency development and be related to the session activity development) 30m Acceleration runs - - Technical Focus - Linked to 365 stage • Purple/Blue Multi Jumps - Development of Elastic Strength (Power) - - From a short run-up - short run-up reduces the strength component required - Focus on technique - timing and rhythm - Looking for fluency - controlled and balanced movements Before an athlete carries out this type of training a movement screen should have been carried out, if controlled landing is an issue for that athlete then practice of landing mechanics and hop and stick movements should be substituted here. Strength and Stability - (Major commitment work in Squat, lunge, push, pull and brace) MD 5in5 Level 1 – Module 4 - Squat Deep to Toes - Supine Bug - Backward Lunge and Reach - Alternating Scorpion - Windshield Wiper Body Builder Warm Down - Stretch - Reflect on session goals	SESSION EXEMPLAR - Monday Hurdle Rhythm, Speed Development and Strength & Stability maintenance Warm Up (Warm up should incorporate any physical competency development and be related to the session activity). Skip Drills - Emphasis on rhythm and fluency - Vary demand • Can alter hurdle height to increase or decrease demand • Can have next athlete start right behind previous one to increase demand of the task Runs over 6 Hurdles - From Standing start - Hurdles brought in from marks at least 2 baby steps - Working on replication of competition rhythm - Looking for fluency - good stability and control onto and off of hurdles Tempo runs (70m) - Related to development of running technique at maximum speed - Fast & relaxed runs - 20-20-30 (accel, fast, faster) Strength and Stability (Major commitment work in Single Leg Squat, Reverse Deadlift, Push, Pull and Brace) Progressive Exercise Sequence (PES) - Single Leg Squat - Stiff leg deadlift - Push ups – single clap - Reverse grip pull ups Warm Down - Stretch - Reflect on session goals

Event Group Syllabus for Sprints and Hurdles
Planning

Planning

*Training 4-5 times per week. Please note that it is important that sporting activities within the athlete's school programme must also be factored into the planning of the training programme.

Training must have sufficient variety to counteract any negative influences that are related to growth.

Training emphasis - Skill & physical development before performance.

The training load is increased from the previous phase.

Young athletes will be growing considerably at this age. Therefore the need to employ a variety of training means is important.

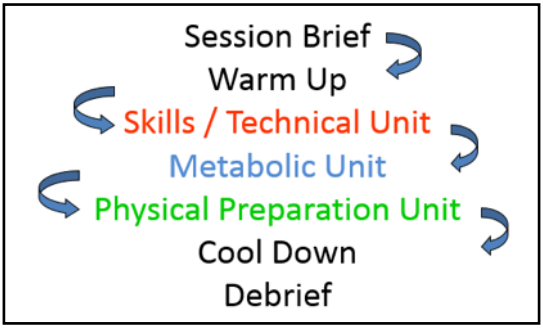
When an athlete attempts to work on two or more units in a session the athlete should always work on:

1. "Neuromuscular" training (e.g. coordination, technical training, speed, speed strength and maximum strength)

BEFORE

2. "Metabolic - Energy production" training (i.e. emphasis on endurance – aerobic)

For example, the training session may be constructed in the following progression:



KPI's

The aim is to achieve 5 out of 5 in all physical competencies outlined in this text.

Introduction to field-based fitness tests for running, jumping and throwing (acceleration, speed, power, endurance). However, these types of tests are maximal and should only be used when the athlete is technical efficient and physically competent. Markers of strength & individual development can also be monitored.

"Testing is training and training is testing" -
Coaches can use markers in training to monitor improvement.

Event Group Syllabus for Sprints and Hurdles

Planning

Coach education for coaches, includes coaching knowledge and coaching practical application (To include athlete supplementary knowledge as already listed)	Event Group Coaches working with athletes at this stage should have the knowledge and understanding of the following: - Understanding of children's physiological development and physical literacy for this stage. - Appropriate technical knowledge and application (in line with athletics 365, purple, blue and black stage). - Key coaching principles applicable for this age group, making sport & athletics fun - Understand the key concepts that underpin athlete development - Understanding of physical competency requirements - Competency based progression - Physical vs technical preparation - Appreciate and understand the ways in which an athlete's physiology changes as they mature and develop - Understand how the physical development of the athlete influences what training methods are most appropriate at different stages during their development - UKA Coaching Qualifications • Coach Assistant • Athletics Coach • Event Group Coach / L3 Performance Coach
Resources	UK Athletics 365 Coaching Pack **scottish**athletics Athletic Development Manual Movement Dynamics Physical Competency Assessment Manual Movement Dynamics Movement Library UKAD – 100%ME

Event Group Syllabus for Sprints and Hurdles
Glossary Of Terms

Intensity - Relative Intensity: % of PB or current potential maximum performance.
Evaluates the effect of exercise on the nervous/endocrine systems (often delayed).

Effort - How "hard" the exercise felt (amount of discomfort) either during or immediately after exercise.
Evaluates the immediate effect of exercise.

Competence - Ability to do something successfully or efficiently and consistently.

Multi-Directional - Functioning or going in more than one direction.

Multi-Plane - movements that are utilising Sagittal, Frontal and Transverse planes together or individually

Amplitude - Athletes' range of movement in an action e.g. short to long, small to big

Metabolic - Range of biochemical processes that occur within the body e.g. Anaerobic, aerobic.

Aerobic - Refers to the primary use of oxygen in muscles' energy-generating process.

Anaerobic - Refers to energy production without the presence of sufficient oxygen

Lactate System – This system involves the breakdown of glycogen in the absence of oxygen, with the resultant formation of ATP plus lactate (lactic acid and associated products).

Locomotor system - how all the body parts work together to create movement also known as the musculoskeletal systemS

Musculoskeletal - relating to or denoting the musculature and skeleton together.

Implicit Learning - learning movements, postures and actions by personal experimentation, trial and error.

Explicit Learning - following a set of cues and drills

Movement Puzzles - a means of learning movements by experimentation and personal discovery rather than telling them exactly how to do it.

Physical Literacy - developing a movement vocabulary in every plane, direction, speed, amplitude and force requirement.

Foundation Movements - Squat, Lunge, Pull, Push, Brace, Rotate, Hinge and Jumping / Landing movements (and all subsequent and progressive hybrids). These are the basic building blocks for all skill acquisition.

Cardio-respiratory System - Transports oxygen and nutrients to the body, removes waste, and regulates the body temperature.

Fartlek - Fartlek, comes from the Swedish for 'Speed Play' and combines continuous and interval training. Fartlek allows the athlete to run whatever distance and speed they wish, varying the intensity, and occasionally running at high intensity levels.
This type of training stresses both the aerobic and anaerobic energy pathways.

Kinaesthetic Sense - relating to the use of sense organs in your muscles and other body parts to feel the position and movements of your body. The athlete's perception through neuromuscular feedback of a body movement.

ROM – Range of Movement

Kinetic Chain - Combination of several successively arranged joints constituting a complex motor unit. The movements that occur within these segments present as two primary type - open and closed.

Neuromuscular system - Muscle fibres are innervated by motor neurons that transmit impulses in the form of electrochemical signals from the spinal cord to muscle.

Endocrine System - The collection of glands of an organism that secrete hormones directly into the circulatory system to be carried towards a distant target organ.

Electrochemical Signal - is an electrical signal that takes place within the nervous system, which transmits signals to different parts of the body.

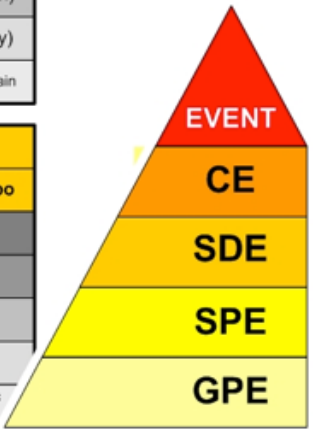
Intrinsic Motivation - Intrinsic motivation refers to behaviour that is driven by internal rewards or for his or her own internal satisfaction or fulfilment.

UKA ECH Sprints – CE/SDE Definitions (V1.1)

UNITED KINGDOM ATHLETICS

CLASSIFICATION	COMPETITIVE EXERCISE (CE)				
Category	"Speed"		Speed Endurance	Specific Endurance	
	Acceleration	Max Velocity (HSR)			
INTENSITY	> 95%		≥ 95%		
DISTANCE	0-60m	10-40m flying	60-150m	150-350m	300-600m (800+)
TIME	<7s	<5s	6-20s	20-40s	40-90s (2min)
Recovery	FULL		FULL or INCOMPLETE (but retain ≥ 95% intensity)		
Notes		From full or sub-max. acceleration	Achieve max. velocity and maintain	Achieve sub-max. velocity and maintain	

CLASSIFICATION	SPECIFIC DEVELOPMENTAL EXERCISES (SDE)			
Category	Resisted Running	Assisted Running	Intensive Tempo	Extensive Tempo
INTENSITY	90-99%	>100%	76-94%	<75%
DISTANCE	10-40m	10-30m	75-500m	50-600m
TIME	<6s	<5s	10-70s	10-120s
Recovery	FULL		INCOMPLETE	
Notes	Overloads acceleration	Overloads max velocity	Overloads anaerobic pathway	Overloads aerobic pathway



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Event Group Syllabus for Sprints and Hurdles

COACHING CHECKLISTS

General strategic aim	To support all athletes by presenting a progressive journey that is appropriate to their individual needs (at every biological stage of their development).	✓
General coaching aims	Athlete appropriate leading to sports / event specific. Know where the athlete is - physically, technically and mentally. Fit the program to the athlete – not the other way round.	✓
Specific coaching aims	Give them the physical competence to do the technical stuff. Give them the technical competence to do the competition / arena stuff In that order For all events – Get them physically literate Get them strong Get them to move (Run, Jump, Throw) fast; Get them fit - in that order. Develop a basic conditioning ability (Total structural strength, stability and range) that stays one step ahead of technical model development. Give them a movement vocabulary to assist skill learning. Get them strong and stable enough to deliver the movements and postures of the event. Teach them the progressions of each event. Build fitness and work capacity of the high quality movements and actions you have created.	✓
Specific session aims	No laps / No lines / No lectures Prepare the session area / environment early (space, equipment, etc). Deliver an appropriate warm-up. Avoid athletes having to queue for an attempt. Look a lot more, listen a lot more, speak a lot less. Use simple instructions. Apart from appropriate recovery time after strenuous activity - keep them active.	✓
	Precision / Progression / Variety Demand excellence in every action and posture. Repeat until they have adapted permanently under all conditions (speed, fatigue and pressure). Use a variety of actions, postures, loads, words, cues, drills to achieve the specific goal.	✓
	Can do / Can do / Can't do / Can do Know how to make a movement or posture easier or harder. Start with what they can do. Then allow them to be challenged and then move them back to what they can do.	✓
	Coach all four pillars in every session Create modules for each session and rotate through them as required. 1. Warm Up 2. Solve puzzles (general or event specific) 3. Event specific activities 4. Physical (strength, stability, mobility, work capacity)	✓

NOTES

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SPRINTS & HURDLES

MOVEMENT DYNAMICS
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