



Primary Schools - Equipment Use and Progression Information



Bitesize Bootcamp Fitness and PE Curriculum Sessions for Schools. Safe and Effective Strength Training for Children

At Bitesize Bootcamp (BSBC), we believe that regular exercise, including appropriately chosen weight training, is both safe and beneficial for children. Strength and conditioning training provides numerous physical and mental advantages when executed correctly and under suitable supervision. This allows children to gain confidence and develop effectively in fitness-based sessions, complementing the BSBC physical education sessions.

The Importance of Strength Training for Children

Strength training for children does not mean lifting heavy weights like professional athletes. Instead, it involves exercises using body weight, resistance bands, or light, age-appropriate weights to develop strength, coordination, and overall fitness. This approach supports healthy growth and development, enhances sports performance, and reduces the risk of injury by improving muscle balance and joint stability.

Scientific research has shown that strength training helps increase bone density, supports a healthy metabolism, and instils lifelong positive exercise habits. It also improves posture, builds self-confidence, and enhances resilience in both physical and mental challenges.

When carried out properly, strength training is a superb addition to a child's fitness routine. Professional guidance from PE teachers, fitness instructors, or qualified coaches ensures that exercises are conducted safely with the appropriate technique and intensity. Key safety measures include warm-ups, cool-downs, and emphasising form over lifting heavy weights.

BSBC Training Approach

At BSBC, we introduce fun and engaging fitness activities using bodyweight exercises and games. We incorporate various play equipment and training styles to ensure all pupils understand their mobility, movement capabilities, and proper exercise techniques. This method aligns with the foundations of functional fitness, which support overall physical well-being.

BSBC Fitness Session Structure:

- A fun and effective warm-up game.
- If the session is functional fitness-based, a 20-35 minute workout or fitness-related activity with appropriate equipment, hydration, and rest breaks. If this is a PE lesson, the functional fitness aspect will be 15 minutes with a 40/45 minute curriculum sport-based focus.
- A team-based game or challenge (e.g., dodgeball, Endzone, teamwork competitions)
- A cool-down session.
- Optional tracking of progress to encourage personal development.

Please note: We provide scaled exercise options, including variations in movement and weight to accommodate all ability levels within groups, providing specialised differentiation based on the needs of the individuals.



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Weighted Equipment and Comparable Everyday Objects

BSBC Weighted Equipment	Daily Examples of Similar Weights used	Weight of Daily Examples
Dumbbells (kg): 0.15, 0.25,0.5,1.0,1.5, 2,2.5,3,4kg	<ul style="list-style-type: none"> ○ Sippy Cup filled with Milk / Water ○ Buzz Lightyear Toy 	<p>0.15-0.25kg</p> <p>0.5-0.75 kg</p>
Kettlebells (kg): 2kg 3kg 4kg 6kg	<ul style="list-style-type: none"> ○ Toy truck transporter ○ Toy Fire Engine ○ Flute ○ 500ml Water bottle ○ Lunch Box 	<p>1.8kg</p> <p>0.5-0.75kg</p> <p>0.69-1.5kg</p> <p>0.5kg</p> <p>1.5-1.8 kg</p>
Slam Balls/bags (kg): 1,2,3,4,5kg	<ul style="list-style-type: none"> ○ Violin inc bow Carry Case ○ Balance Bike 	<p>3-5kg</p> <p>7-10kg</p>
Plates: 0.25,1.25,1.5,2,2.5 5kg	<ul style="list-style-type: none"> ○ Kids Bikes Aged 4-12 	<p>2.5-3kg</p> <p>6-12kg</p>
Barbells: Training Bar 2.5kg Olympic Training Bar 7.5kg	<ul style="list-style-type: none"> ○ Junior Cricket Bat Weights ○ <i>Size 1 (age 3-5)- Size 6/Harrow</i> ○ School PE Bench's 1.83-3.35m 	<p>0.9kg-1.4kg</p> <p>11kg-24kg</p>

Age-Appropriate Training Stages

Pre-School/Reception – Stage 1: Fun Mobility and Basics

- Fundamental movement patterns, bodyweight obstacle courses, and strength-building through play.
- Exercises: Squats, lunges, burpees, jumps, rocket thrusters, push press
- Equipment: Plastic barbell (no water), yellow hurdles, light play items (bean bags, PVC pipes)
- Once basic movements are mastered, pupils may use 0.5–1kg weights for squats

Years 1-3 – Stage 2: Introduction to Weighted Movements

- Controlled strength exercises with light resistance.
- Equipment: Dumbbells (0.25–2kg), kettlebells (1–3kg), plastic barbell with water (4kg), training bar (2.5–7.5kg)



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- Exercises: Deadlifts, thrusters, cleans (overhead movements permitted only when performed with correct form)
- Introduction of fitness-based circuits and teamwork games

Years 4-6 – Stage 3: Strength Progression and Skill Development

- Developing strength through structured resistance training and functional movement drills.
- Increased repetitions and duration of workouts based on ability
- Plyometric exercises introduced (e.g., box jumps, explosive drills)
- Small-scale strength programming integrated into sessions
- High-intensity circuits using lighter weights for cardiovascular benefits
- Sport-specific exercises demonstrating real-world applications (e.g., kettlebell swings for rugby tackling strength, deadlifts for increased speed and power).

Age Group	Focus Areas / Exercises	Equipment Used For Skill Progressions (KG)
Pre School/ Reception	Stage 1 Fun Mobility and Basics Foundations Functional Movements Bodyweight Obstacle Courses Strength building with play items for skill and technique.	<ul style="list-style-type: none"> • Squats • Lunges • Burpees • Tuck Jumps • Lateral Jumps • Broad Jumps • Rocket Thrusters • Push Press • Plastic Barbell (No water) • Yellow Hurdles • 0.5-1kg will be introduced for GB Squats -after safely executing movements or skills with play progressions using a ball, bean bag, pvc pipe.
Years 1-3	Stage 1 plus Stage 2: Progress to weighted items used for certain controlled exercises. For example: Dumbbell: Deadlift, Thrusters, Cleans up to 2.5kg overhead in time.	Equipment in Stage 1 + <ul style="list-style-type: none"> • Kettlebells (Hip/ Eye level Only) 1-3kg • Dumbbells – (0.25kg-2kg) • Plastic Barbell with water (4kg) • Training bar used for technique (2.5kg) • DL Training Bar (7.5kg) • Bootcamp Development includes:



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	<p>Once mastered on the DB, build to 1RM DL that is safely taught with correct form on a training bar.</p> <p>Low repetitions to help build and improve correct technique.</p> <p>Begin grouping exercises together to create workouts that the group/individual can follow.</p>	<ul style="list-style-type: none"> • Circuits • Channels • Ladders • YGIG • EMOM • AMRAP <p>Overhead movements only for those displaying correct form under control.</p> <p>Introduce team games within the sessions (Football, Dodgeball, Netball /Basketball Shooting...) to help show how BSBC training can help support any form of exercise.</p>
<p>Years 4-6</p>	<p>STAGE 1 + Stage 2+ Stage 3: Increase strength by increasing the repetitions for exercises using the weighted equipment.</p> <p>Increase the time working on strength, conditioning and speed.</p> <p>All of the above is based upon the individual's ability and level of capability with any exercise.</p>	<p>Equipment in Stage 1 + Stage 2 +</p> <ul style="list-style-type: none"> • Increase of weights relevant to age, form, strength and ability. • Plyometric movements introduced. • Setting a side specific skill time to help improve strength in Legs, Arms and Core. Strength Programming introduction on a small scale. • Including a high paced circuit with lighter weights used in the skill for more of a cardiovascular workout. • Introduction of more game specific situations and how specific exercises can develop muscles, reactions, strength, speed, stamina etc to help an individual's overall performance. <p>For example:</p> <ul style="list-style-type: none"> • Box jumps = Explosive power= heading a ball. • Deadlifts / KB Swings =targeting specific muscles = increase strength for speed, kicks, contact tackles in



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		Hockey or Rugby, shielding a player...
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Supporting Research & Further Reading:

Links that support BSBC foundations framework:

Below are some supportive research links regarding primary and secondary school children engaging in functional fitness activities and exercises and learning safe lifting techniques from an early age. Please note that we are not an Olympic lifting-focused programme; bootcampers do not engage in intense strength-building or lifting activities for our participants.

We teach fundamental lifting techniques using play equipment, free weights, and other fitness tools appropriate for their age groups and ability levels. Our aim is to cultivate happy, strong, and confident children and teenagers who lift correctly, progress, move well, and enjoy themselves. The ultimate goal is to inspire children to be more active and potentially enhance their interest or confidence in participating in team sports.

http://library.crossfit.com/premium/pdf/CFJ_Guere_BrandX_Dec10.pdf?e=1638231936&h=1b199ab27637dd45d164c3f29bcf4c2c

<https://well.blogs.nytimes.com/2010/11/24/phys-ed-the-benefits-of-weight-training-for-kids/>

<https://www.npr.org/sections/health-shots/2012/09/25/158652017/is-crossfit-training-good-for-kids?t=1638231527171>

<https://publications.aap.org/pediatrics/article/121/4/835/70927/Strength-Training-by-Children-and-Adolescents>

<https://www.mensjournal.com/health-fitness/how-young-too-young-start-lifting-weights/>

<https://pubmed.ncbi.nlm.nih.gov/28795003/>

To put things in perspective, we do not train our participants like Rory in the link below. It is pretty impressive, though. As you can imagine, she's doing pretty well in her gymnastics.

<https://www.sportbible.com/australia/news-strongest-seven-year-old-girl-in-the-world-can-deadlift-80kg-20201215>

<https://youtu.be/ASVwMUDSUPQ>

Her coach speaking when Rory was aged 6:

<https://www.cbc.ca/news/canada/ottawa/weightlifter-six-year-old-rory-van-ulft-1.5241131>



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Several UK-based studies and guidelines support the inclusion of weight training and high-intensity interval training (HIIT) in children's fitness routines:

1. Resistance / Weight Training for Children:


- The UK Strength and Conditioning Association (UKSCA) highlights the increasing popularity and benefits of resistance training among children and adolescents. Their review indicates that, when properly supervised, resistance training can enhance muscular strength, support bone health, and improve sports performance in young individuals. cdn.ukzca.org.uk
- A study by the Universities of Edinburgh and Dundee examined the effects of resistance training on children aged 8 to 16. The findings suggest that such training can decrease body fat, contributing to efforts against child obesity. The researchers advocate for further exploration into how resistance training can be utilized to treat and prevent obesity in children. ed.ac.uk


2. High-Intensity Interval Training (HIIT) for Children:


- A systematic review and meta-analysis by researchers at the University of Strathclyde assessed school-based HIIT programs for children and adolescents. The study concluded that HIIT interventions are effective in promoting health outcomes, including improvements in physical fitness and cardiometabolic health, compared to traditional exercise modalities. [PLOS+1SpringerOpen+1](https://doi.org/10.1371/journal.plosone.0198881)
- The NHS physical activity guidelines for children and young people aged 5 to 18 recommend incorporating exercises that strengthen muscles and bones. While not explicitly mentioning HIIT, the guidelines emphasise the importance of varied physical activities, including high-intensity exercises, to support overall health and development. [nhs.uk](https://www.nhs.uk)

Incorporating appropriately supervised weight training and HIIT into children's fitness programs can offer numerous benefits, including enhanced strength, improved cardiovascular health, and effective physical and mental well-being.

If you would like to speak further about this or see more of our programming in detail with more information, research or footage of our bootcampers in action. Please email Ruth@bitesize-bootcamp.com, and we can arrange a meeting to help your school further understand the benefits of BSBC delivering fitness alongside their PE curriculum at your school.

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