The Dragon Challenge

The Dragon Challenge V1.0 (DCV1.0) aims to measure the physical competency of children age 10-12 years. DCV1.0 was developed through a Sport Wales, Swansea University and Liverpool John Moores University partnership, and includes 9 tasks that are completed in a continuous fashion. DCV1.0 was designed to be an enjoyable challenge for children, whilst at the same time allowing practitioners to assess stability, manipulative and locomotor skills that are fundamental in movement proficiency. These skills are essential for physical competence and contribute to physical literacy, but the DCV1.0 does not explicitly assess other physical literacy attributes such as confidence and motivation, knowledge and understanding.

A Dynamic Assessment of Children's Physical Competence: The Dragon Challenge

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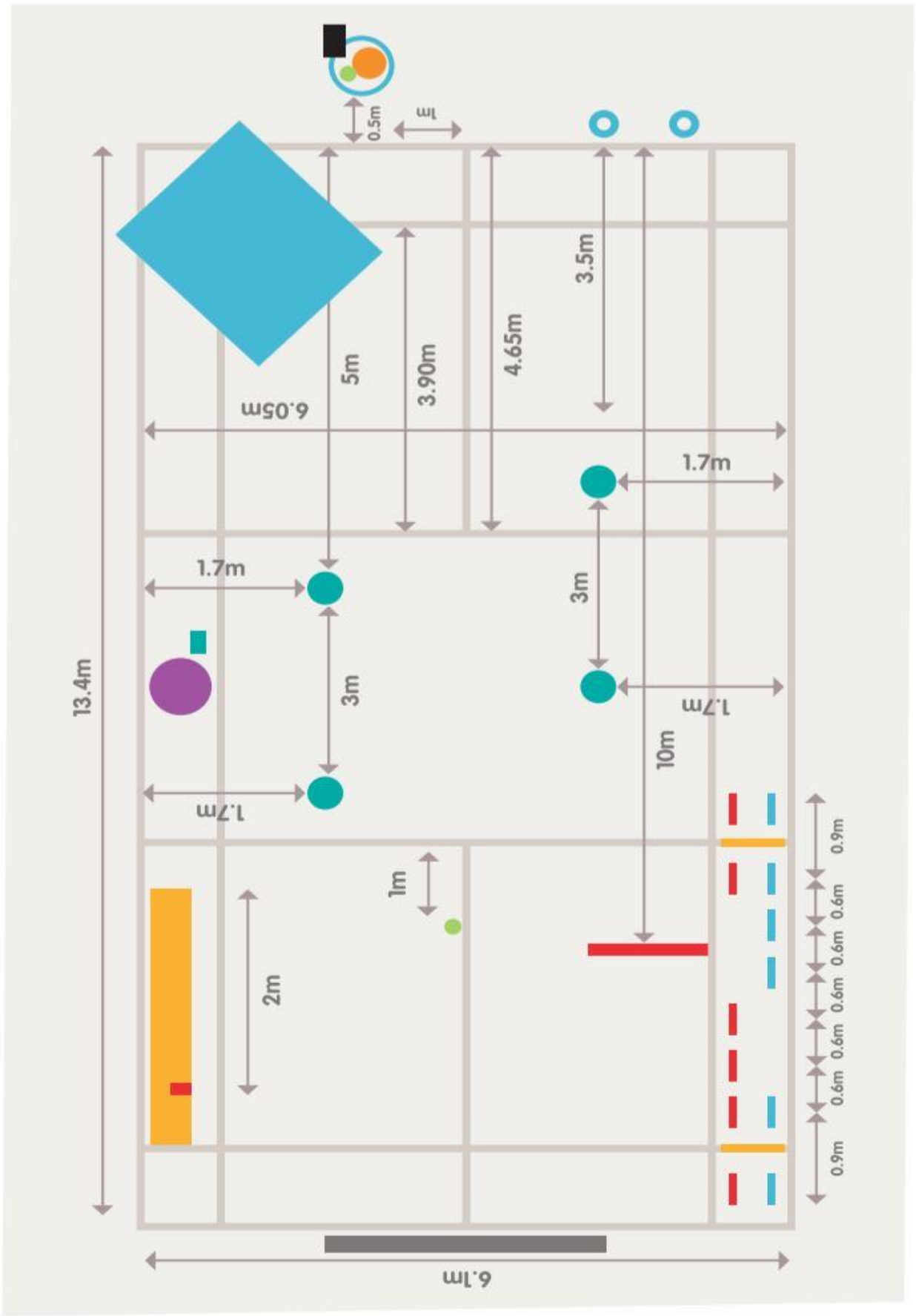
ABSTRACT

TYLER, R., L. FOWEATHER, K. A. MACKINTOSH, and G. STRATTON. A Dynamic Assessment of Children's Physical Competence: The Dragon Challenge. *Med. Sci. Sports Exerc.*, Vol. 50, No. 12, pp. 2474–2487, 2018. **Purpose**: The first aim was to develop a dynamic measure of physical competence that requires a participant to demonstrate fundamental, combined and complex movement skills, and assessors to score both processes and products (Dragon Challenge [DC]). The second aim was to assess the psychometric properties of the DC in 10- to 14-yr-old children. **Methods**: The first phase involved the development of the DC, including the review process that established face and content validity. The second phase used DC surveillance data ($n = 4355$; 10–12 yr) to investigate construct validity. In the final phase, a convenience sample ($n = 50$; 10–14 yr) performed the DC twice (1-wk interval), the Test of Gross Motor Development-2 (TGMD-2), and the Stability Skills Assessment (SSA). These data were used to investigate concurrent validity, and test–retest, interrater and intrarater reliabilities. **Results**: In support of construct validity, boys ($P < 0.001$) and secondary school children ($P < 0.001$) obtained higher DC total scores than girls and primary school children, respectively. A principal component analysis revealed a nine-component solution, with the three criteria scores for each individual DC task loading onto their own distinct component. This nine-factor structure was confirmed using a confirmatory factor analysis. Results for concurrent validity showed that there was a high positive correlation between DC total score and TGMD-2 and SSA overall score ($r(43) = 0.86$, $P < 0.001$). DC total score showed good test–retest reliability (intraclass correlation coefficient = 0.80; 95% confidence interval, 0.63, 0.90; $P < 0.001$). Interrater and intrarater reliabilities on all comparison levels was good (all intraclass correlation coefficients > 0.85). **Conclusion**: The DC is a valid and reliable tool to measure elements of physical competence in children age 10 to 14 yr. **Key Words:** PHYSICAL COMPETENCE, MOTOR COMPETENCE, ASSESSMENT, MEASUREMENT, CHILDREN, RELIABILITY, VALIDITY

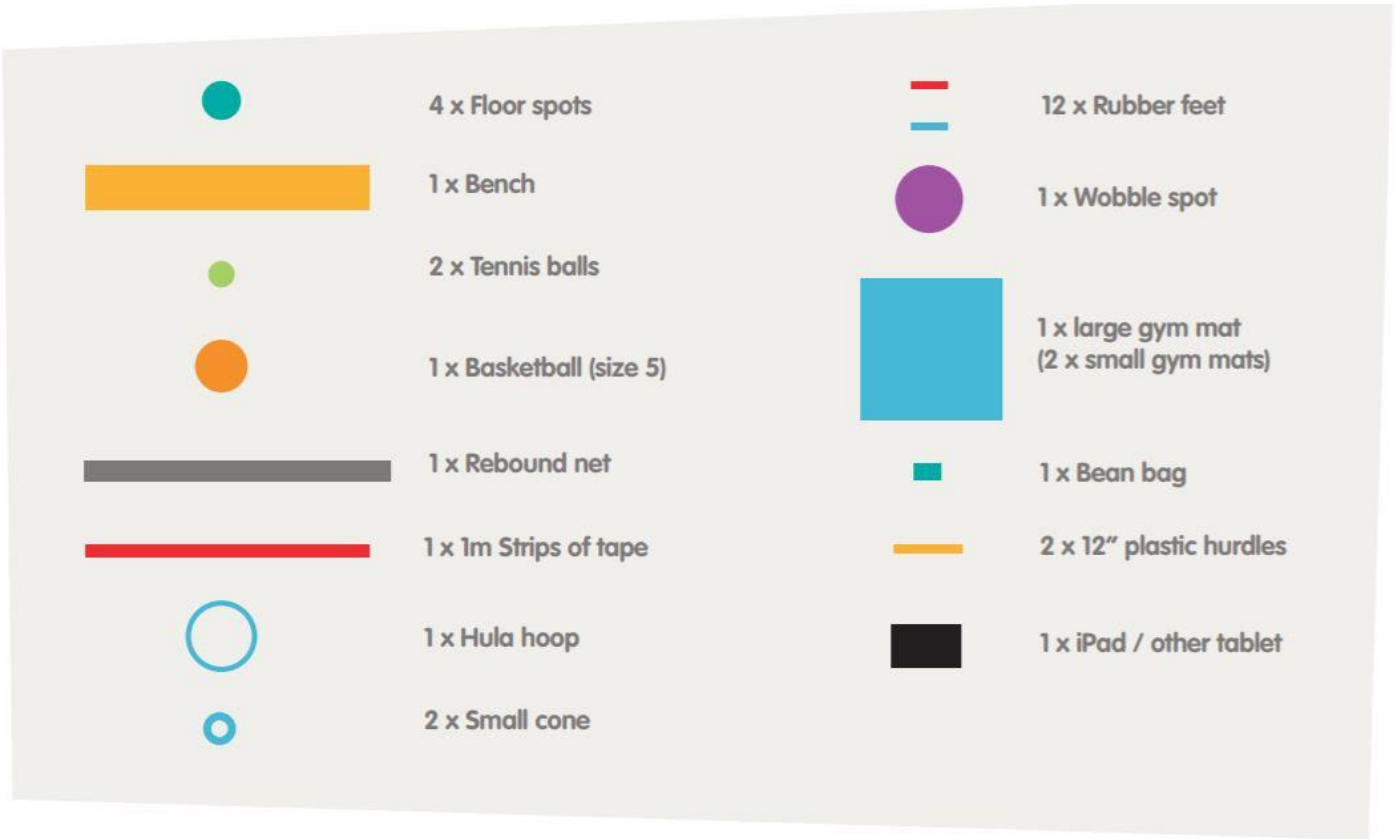
Dragon Challenge Set up (Extracted from the V1.0 training manual)



Dragon Challenge Equipment Equipment List (V1.0 training manual)

Equipment List

- 1 x 30-meter measuring tape
- 1 x 5-meter measuring tape
- 1 Reel of colored electrical/masking tape (2-3 inches wide)
- 1 x Rebound net (2m x 2m)
- 1 x Wooden bench (minimum length: 1.5m; maximum width: 65mm)
- 1 x Fully inflated balance cushion (wobble spot)
- 1 x Bean bag
- 4 x Rubber floor spots
- 2 x Small plastic indoor hurdles (height: 30cm/12")
- 12 x Rubber 'feet' markers (6 x left foot, 6 x right foot)
- 2 x Small traffic cones
- 1 x Hula hoop
- 1 x Basketball (size 5; 0.5-0.6 bar; 7-9 PSI)
- 2 x Tennis balls
- 1 x IPad/tablet used for display of challenges



How the Dragon Challenge is Performed

The student will first touch the IPad to begin the challenge and the first task will be displayed. Once the task is complete the student will go back and touch the IPad to reveal the next task. They will repeat the process until all 9 tasks are complete. The student will be graded on time of completion and skill performance (technique and outcome).

Tasks to be performed

Activity	Actions
1. Balance Bench	Run to bench. Walks length of beam, completes full turn at 3/4 mark without falling off, dismounts at end zone. Return to IPad
2. Core Agility	Run to mat. Completes 4 positions in correct order (Banana on back - arch on front - dish on back - arch on front), rotating both ways. Return to IPad
3. Wobble Spot	Run to wobble spot. Pick up bean bag. Get set. Completes 5 bean bag passes around body while balancing on wobble spot on one leg. Return to IPad
4. Overhead Throw	Pick up tennis ball from hoop. Run and perform an overhead throw, hitting the target (i.e. rebound net; no bounce). Return to IPad
5. Basketball Dribble	Collect basketball from hoop. Dribble basketball around all spots and back to hoop using either hand (body & ball must move around outside of spots). Cannot catch ball/use two hands simultaneously. Return to IPad
6. Catch	Run forward and collect tennis ball from floor. Underarm throw tennis ball against the net and then catch (must be caught without a bounce). Return to IPad
7. T-agility	Moves at half speed through all points of 'T' facing forwards
8. Jumping Patterns	Run to and complete jumping patterns sequence (2 footed jump over hurdle > 2 footed landing > 2 left hops > 2 right hops > 2 footed jump over hurdle > 2 footed landing). No contact with hurdles. Return to IPad
9. Sprint	Runs through start gate & then through to finish line

- Definitions of actions are from the Dragon Challenge manual V1.0