

MotoLab

Speed

PHYSICAL FITNESS MODULE



24 exercises with two-sided cards

Illustrated manual for upper secondary

Course diagrams and energy systems

Reaction, acceleration and agility

Choose your exercise

24 cards to use individually or combine in your lesson planning.

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Cards 20, 21 and 23 are partner tasks; card 22 is a team relay.

Before the activity

Quality and recovery

Choose a fast running pace you can control technically. Attempts are short, with generous recovery periods. Start again once control and breathing have recovered. The teacher may extend the wait and reduce repetitions.

Progressive warm-up

Allow about 10-12 minutes for walking, easy running, dynamic mobility and two short runs of increasing intensity. Walk through the course before the fast phase. Stop if you feel pain or lose control and tell the teacher.

Space and organisation

Measure the whole course, including slowing down, waiting and returning. For a class of 24, make four groups of six if four complete stations fit. With two stations, alternate waves and reduce attempts to keep timing manageable.

Reading the diagrams

Each diagram shows one station. Teal: fast action. Gold: slowing down. Dashed line: walking return. Zone colours help organise the task. Use the written distances for the actual setup.

Understanding the exercise and energy use

Inside the card

The front explains the movement and objectives. The back connects workload, energy system, organisation and results. Side panels cover adaptations and observation. Course diagrams are on pages 53-64.

Energy systems in short fast efforts

ATP-PCr, or alactic: phosphagens rapidly regenerate ATP during very short efforts.

Glycolytic, or lactic: glycolysis contributes from the start, with its share increasing according to duration and intensity.

Aerobic: contributes to effort and recovery between attempts.

Actual duration and recovery

The profile indicates the contribution expected to predominate at the suggested workload. Time the entire fast movement, including the run-in for flying runs and every leg of shuttle runs. Each runner determines the profile of their own relay leg. Recovery supports phosphocreatine replenishment and movement quality.

References

Baker et al., Interaction among Skeletal Muscle Metabolic Energy Systems (2010). Bogdanis et al., Phosphocreatine and aerobic metabolism in repeated sprint exercise (1996). NSCA, Energy Dynamics During Exercise (2017).

Method: NSCA · Designing Speed Training Sessions (2019).

Accessed 2 October 2026. Card profiles: MotoLab teaching interpretations of the proposed workloads. Original text and diagrams; illustrations generated using AI.

01

Sprint on the Sound

REACTION · INDIVIDUAL

Equipment: 24 low cones for 4 stations, stopwatch, cards and pencils.



Course diagram: page 53

Aims and objectives

Develop reaction through a short, observable task.

Waits for the signal · Initiates the first steps · Uses the slowing-down zone

Execution

1. Stand with one foot slightly forward and look along your lane.
2. Start on the clap, accelerate for 10 m and cross the finish.
3. Slow down over the next 8 m and walk back outside the lane.

01

Sprint on the Sound

WORKLOAD • ENERGY SYSTEM • ORGANISATION

EXERCISE AND RESULTS

Workload

Workload: 4 attempts.

Recovery: about 2 minutes between the same student's starts; walk back. Extend the wait as needed.

Time: 10-12 minutes for explanation, turns and discussion; warm-up separately.

Energy system

Alactic anaerobic • ATP-PCr

The ten-metre sprint focuses the work on the first steps. A strong phosphagen contribution is expected during the brief phase. Keep attempts fast, with the recovery specified on the card.

Preparation and organisation

Four lanes, each 2 m wide. Mark the start, finish at 10 m and another 8 m clear for slowing down. Leave 1 m between lanes.

Six students per station; one start every 20 seconds.

Activity results

Record one successful detail and compare attempts; hand-timed results are approximate.

A useful choice: _____

To revisit: _____

TEACHER RESOURCES

**Adapt the task**

Easier: announced start and a 6 m run.

Harder: use two possible pauses before the same signal, keeping the distance unchanged.

Accessible: adapt distance, signal and movement.

**Teacher feedback**

Look ahead and react to the actual sound. Varying the pause helps distinguish waiting from anticipating.

Extend recovery if movement quality declines.

**Observe and revisit**

- Waits for the signal
- Initiates the first steps
- Uses the slowing-down zone

Choose one detail to revisit.

02

Start When You See

REACTION · INDIVIDUAL

Equipment: 24 low cones for 4 stations, stopwatch, cards and pencils. Four pairs of cards with the required signals.



Course diagram: page 53

Aims and objectives

Develop reaction through a short, observable task.
Identifies the visual signal · Starts within the lane · Keeps an effective gaze

Execution

1. Look at the card and stay ready in your lane.
2. Start when the card is raised and run 8 m.
3. Cross the finish, slow down and say which cue you saw.

02

Start When You See

WORKLOAD • ENERGY SYSTEM • ORGANISATION

EXERCISE AND RESULTS

Workload

Workload: 4 attempts.

Recovery: about 2 minutes between the same student's starts; walk back. Extend the wait as needed.

Time: 10-12 minutes for explanation, turns and discussion; warm-up separately.

Energy system

Alactic anaerobic • ATP-PCr

The eight-metre run follows a single visual signal. A strong phosphagen contribution is expected during the brief phase. Keep attempts fast, with the recovery specified on the card.

Preparation and organisation

Four 8 m lanes followed by 8 m for slowing down. The signal giver stands to the side, visible to everyone. Six students per station; one start every 20 seconds.

Activity results

Record one successful detail and compare attempts; hand-timed results are approximate.

A useful choice: _____

To revisit: _____

TEACHER RESOURCES

**Adapt the task**

Easier: larger card and signal giver closer by.

Harder: alternate two previously agreed signal-giver positions.

Accessible: adapt distance, signal and movement.

**Teacher feedback**

Keep your neck comfortable and face the running direction. The signal must be visible before the start.

Extend recovery if movement quality declines.

**Observe and revisit**

- Identifies the visual signal
- Starts within the lane
- Keeps an effective gaze

Choose one detail to revisit.

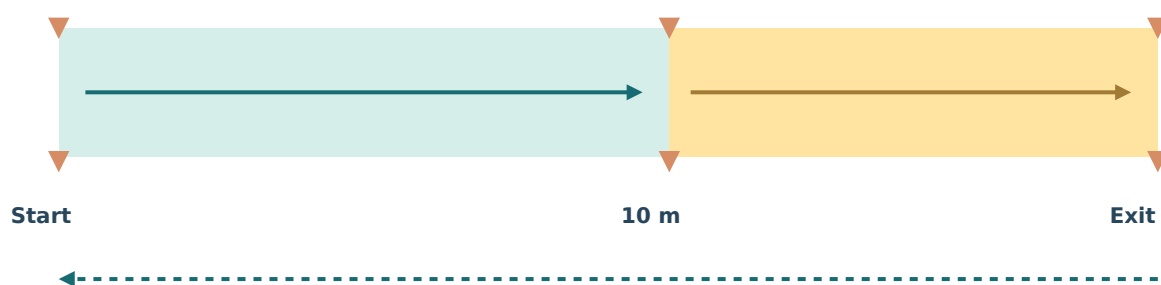
MotoLab · Course diagrams

One station per exercise · setup dimensions

01 · Sprint on the Sound

ONE STATION · task diagram

The teacher claps after a variable pause of 2-4 seconds.

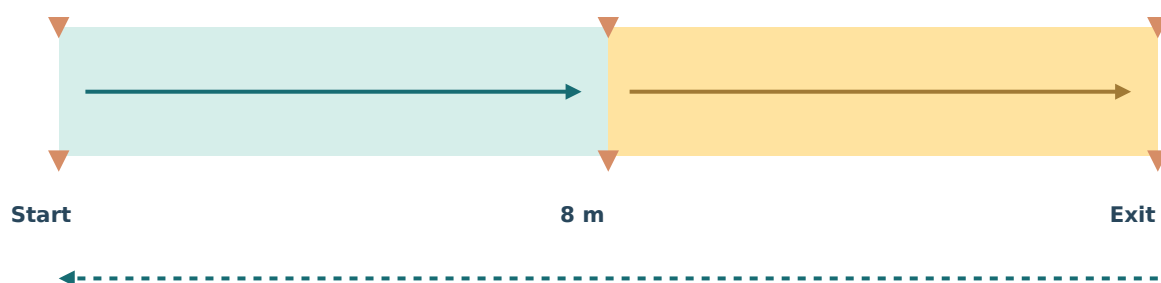


Teal: running · gold: slowing down · dashed: walking return

02 · Start When You See

ONE STATION · task diagram

A large card is raised above the signal giver's shoulder.



Teal: running · gold: slowing down · dashed: walking return