



NUCLEAR  
WILD FOREST  
SCHOOLS

# WILD FOREST

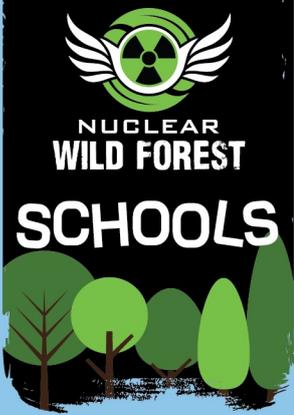
## KS2 LEARNING RESOURCES

### MUDDY OBSTACLE CHALLENGE



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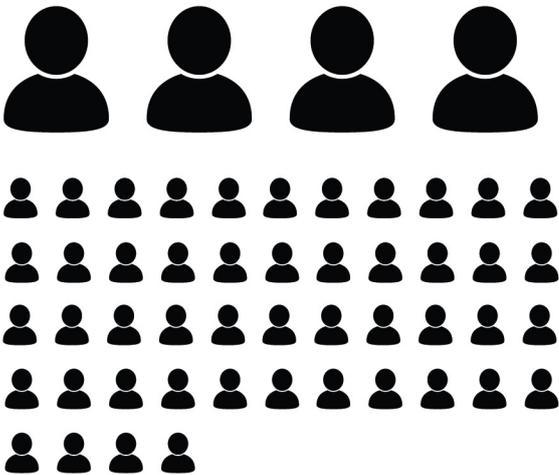
NAME :

# MUDDY OBSTACLE CHALLENGE

Let's have a little look at teaming up and estimating times.

## 1. TEAMWORK PLANNING

If there are 4 adults and 48 children – can we pair adults with equal groups of children?



How many children will be in each group? .....

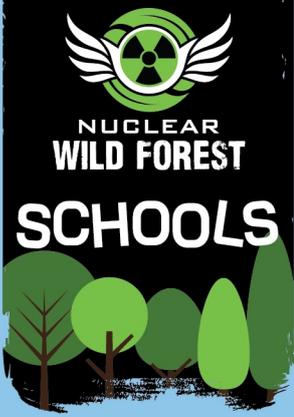
If an obstacle requires 2 people, how many groups from a class of 48? .....

## 2. ESTIMATION CHALLENGE

If each obstacle takes a child 2-3 minutes, estimate how long it will take a group of 6 children to complete 10 obstacles.

What if 2 children can do the obstacles **simultaneously**?





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# MUDDY OBSTACLE CHALLENGE

OK, now let's think about measuring distance and time.

## 3. MEASURING & ESTIMATING DISTANCES USING GIVEN DATA

The obstacle activity centre has provided the following information:

- The course is **120** metres long
- There are **12 obstacles** along the course

Using this information, answer the questions below:

What is the average distance between each obstacle? .....

If one obstacle section is 15 metres long, how many sections would fit into the course? .....

If a child moves at an average speed of 2 metres per second, how long would it take to complete the course? .....

If an adult moves at 1.5 metres per second, how long would it take them? .....

### Extension:

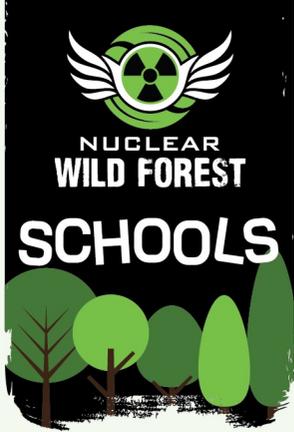
- Convert the times into minutes and seconds .....
- Discuss why children and adults might move at different speeds on a muddy course.

## 4. OBSTACLE CALCULATION

- Each obstacle takes 5 minutes.
- Each obstacle allows 4 children to participate at a time.

20 children, 12 obstacles → total time?

The mud pit is 3m, if you can jump 1m at a time → how many jumps to get across the pit?



# TEACHER NOTES

## 1. Teamwork planning

- 4 adults + 48 children → pair 1 adult with 12 children, or rotate in smaller groups
- Obstacle requiring 2 people from 48 children →  $48 \div 2 = 24$  groups

### Curriculum Links:

**Multiplication & Division: Grouping and sharing**

**Reasoning: Explain strategies**

**PSHE: Teamwork and collaboration**

## 2. Estimation Challenge

- Time for 6 children; 6 children x 10 obstacles x 2–3 min = 120–180 min
- Time for 2 children taking obstacle simultaneously: Same calculation then dividing answer by 2 as the time is halved.

### Curriculum Links:

**Number & Place Value: Estimate and approximate numbers**

**Measurement: Solve problems involving time**

## 3. Measuring and Estimating Distances (Using Given Data)

- Average distance between obstacles:
- $120 \text{ m} \div 12 = 10$  metres
- Number of 15 m sections in the course:  $120 \div 15 = 8$  sections
- Time for a child at 2 m/s:  $120 \div 2 = 60$  seconds (1 minute)
- Time for an adult at 1.5 m/s:  $120 \div 1.5 = 80$  seconds (1 minute 20 seconds)
- Extension discussion points: Mud increases friction, slowing movement. Adults may take longer helping children. Safety and teamwork can affect speed

### Curriculum Links:

**Maths – Measurement: Measure, estimate, and calculate lengths, time, and speed**

**Maths – Number: Division and multiplication in real-life contexts**

**Maths – Reasoning: Explain and justify answers**

**Science (link): Forces and movement (surface resistance, mud)**

## 4. Obstacle Calculation

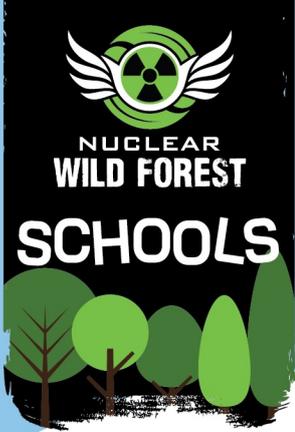
- $20 \text{ children} \div 4 =$  teams of 5.  $5 \text{ min} \times 12 \text{ obstacles} = 60 \text{ min}$ .  $60 \text{ min (1 hour)} \times 5 \text{ teams} =$  total 5 hours.
- Mud pit:  $3 \div 1 = 3$  jumps

### Curriculum Links:

**Word Problems: Multi-step reasoning**

**Multiplication & Division**

**Reasoning: Explain and justify answers**



NAME : \_\_\_\_\_

# MUDDY OBSTACLE CHALLENGE

Let's have a think about our bodies and how they work when we're active.

## 1. HOW DOES YOUR BODY MOVE?

- Draw a simple diagram of your body and label the major muscles and bones you use when climbing, jumping, running, or crawling through mud.
- In small groups, discuss which muscles you think work hardest in different obstacles (e.g., arms for climbing, legs for running, core for balance).
- Try some stretches and simple exercises to feel the muscles working.

## 2. HEART RATE INVESTIGATION

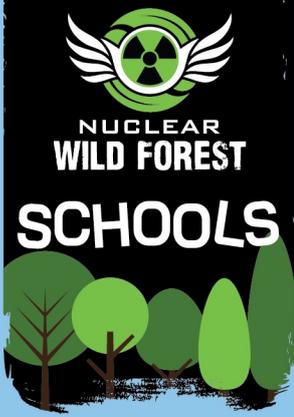
- Find your pulse on your wrist or neck.
- How many beats you feel in 10 seconds? .....
- Multiply this number by 6 to get your beats per minute ..... x 6 = ..... BPM

**Perform 10 jumping jacks or a 30-second sprint**

- Count your pulse again, how many beats you feel in 10 seconds now? .....
- Multiply this number by 6 ..... x 6 = ..... BPM



Compare your results and discuss with your friends: Why does your heart beat faster? How does exercise affect your body?



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# MUDDY OBSTACLE CHALLENGE

OK, now let's have a look at balance, the wonderful world of mud, and what kind of things we can use for fuel.

### 3. THE SCIENCE OF BALANCE AND COORDINATION

Set up a simple obstacle course in the classroom or playground. Include balancing on a line, hopping and crawling.

Experiment with moving slowly vs quickly.

 How does your balance change?

Which part of your body helps you stay steady? 

 Discuss why balance is important for completing obstacles safely.



### 4. MUD AND THE ENVIRONMENT

- Look at pictures of muddy terrains and think about how mud is formed.
- Discuss what plants, animals and insects might live in or around muddy areas.
- Create a simple food chain showing a mud-dwelling ecosystem.

### 5. HEALTHY CHOICES FOR ACTIVITIES

Discuss with your friends what foods give you energy for physical activity and why water is important for staying hydrated.

Plan a "pre-activity snack" that would fuel your trip to the obstacle centre and draw or write it below.





# TEACHER NOTES

## 1. How Does Your Body Move?

Suggested Answers / Discussion Points:

### Muscles used in activities:

Climbing: biceps, forearms, shoulders, core

Running: quadriceps, hamstrings, calves

Crawling: core, shoulders, triceps

**Bones supporting movement:** femur, tibia, humerus, spine

- Discuss how muscles work in pairs (agonist/antagonist) to allow movement.
- Encourage students to identify which muscles “feel tired” after different exercises.

### Additional Tips:

Teachers can demonstrate stretches and identify which muscles are being stretched. Emphasize safety and correct form during demonstrations.

### Curriculum Links:

**Science – Animals, including humans: Identify and name the main parts of the human circulatory and muscular system, and explain their functions.**

**PE: Use running, jumping, throwing, and catching in isolation and in combination.**

## 2. Heart Rate Investigation

### Expected Observations:

- Resting heart rate: generally 60–100 bpm (KS2 students often slightly higher)
- After exercise: heart rate increases noticeably (often 100–140 bpm depending on effort)

Discussion points:

Heart pumps more blood to deliver oxygen to muscles.

Breathing rate increases to supply oxygen and remove carbon dioxide.

### Teacher Notes:

- Remind students to measure their pulse carefully using fingers on the wrist or neck.
- Encourage students to record results accurately and compare them in a table.

### Curriculum Links:

**Science – Animals, including humans: Describe the changes in the human body during exercise, including pulse rate and breathing rate.**

**Maths: Collect and interpret data using tables and charts.**

## 3. The Science of Balance and Coordination

Discussion Points / Notes:

**Balance is affected by:** core strength, coordination, focus, speed of movement

**Forces involved:** gravity pulls the body down, muscles provide counterforce

**Observations may include:** wobbling when moving fast or improved stability when moving slowly.

Teachers can demonstrate how leaning, bending knees, or

widening stance improves balance.

### Tips:

- Ensure obstacles are safe and risk-assessed.
- Emphasize practicing control before speed.

### Curriculum Links:

**Science – Forces: Explore how different forces (push, pull, gravity) affect movement.**

**PE: Develop balance, agility, and coordination in activities.**

## 4. Mud and the Environment

Suggested Answers / Discussion Points:

**How mud forms:** mix of water and soil, often after rain

**Living things in mud:** worms, insects, small amphibians, plants like reeds

**Simple food chain example:** Mud → Worm → Bird → Fox

Encourage discussion about the importance of muddy habitats for biodiversity.

### Teacher Tips:

- Show pictures of real muddy environments to spark curiosity.
- Discuss how humans impact muddy habitats and how we can protect them.

### Curriculum Links:

**Science – Living things and their habitats: Describe the life cycles and habitats of different plants and animals.**

**Geography/Science: Understand how soil and mud are formed and their role in the environment.**

## 5. Healthy Choices for Activities

Suggested Answers / Discussion Points:

**Energy foods:** fruit, vegetables, whole grains, protein (nuts, eggs)

**Hydration:** water is essential; sugary drinks less effective for sustained energy

Discuss importance of pre-activity snack timing (30–60 minutes before exercise)

**Link to safety:** warm-up, appropriate clothing, and protective gear

### Teacher Tips:

- Encourage students to think about portion sizes and variety.
- Discuss how different foods fuel different types of activities.

Reward creativity and accurate recording rather than “perfect” scientific answers.

### Curriculum Links:

**Science – Animals, including humans: Identify the importance of diet, exercise, and hygiene for maintaining a healthy body.**

**PSHE: Recognise ways to maintain physical health and well-being.**