Movement and speed

VOCABULARY PRACTICE

UPPER-INTERMEDIATE | B2

Name: _____ **Date:** _____

1 Match each kinematic concept with its meaning.

1 displacement	____	a force resisting motion through a fluid
2 trajectory	____	b rate at which rotational position changes
3 momentum	____	c repetitive movement around an equilibrium
4 acceleration	____	d straight-line change in position with direction
5 deceleration	____	e rate of change of velocity
6 terminal velocity	____	f action that drives an object forwards
7 angular velocity	____	g path followed by a moving object
8 oscillation	____	h mass multiplied by velocity
9 propulsion	____	i acceleration opposite to current motion
10 drag	____	j constant falling speed when forces balance

2 Complete the kinematics collocations.

angular | **drag** | **momentum** | **propulsion** | **terminal** | **trajectory** | **uniform** | **velocity**

1 follow a curved _____

2 gain _____

3 reach _____ velocity

4 a _____ motion

5 reduce aerodynamic _____

6 a jet _____ system

7 change in _____

8 high _____ velocity

3 Choose the most precise term for the context.

1 A projectile follows a curved path: *trajectory / displacement*.

2 Mass times velocity gives *momentum / drag*.

3 A falling body stops accelerating at *terminal velocity / propulsion*.

4 Rotation rate is *angular velocity / deceleration*.

5 Air resistance is a form of *drag / oscillation*.

6 Repeated back-and-forth motion is *oscillation / trajectory*.

7 A rocket moves through *propulsion / momentum loss*.

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4 Complete the motion analysis with terms from the box.

acceleration | angular velocity | deceleration | displacement | drag | momentum | oscillation | propulsion | terminal velocity | trajectory

A rocket's **1** _____ system generates thrust. Its **2** _____ depends on launch conditions and forces. The change from rest involves **3** _____, while slowing during landing involves **4** _____. Its mass and velocity determine **5** _____. For rotating parts, **6** _____ measures rotation rate. Atmospheric **7** _____ opposes motion. A falling component may reach **8** _____. Repeated vibration is an **9** _____, while the directed change from start to finish is **10** _____.

5 Read the text and answer the questions briefly.

Why parachutes reduce falling speed

A falling person accelerates because gravity exceeds air resistance. Opening a parachute greatly increases surface area and therefore drag. The resulting upward force produces rapid deceleration. As speed falls, drag also decreases until it balances weight again. The person then continues downward at a much lower terminal velocity.

1 Why does a falling person initially accelerate? _____

2 What does opening a parachute increase? _____

3 Which resisting force becomes larger? _____

4 What produces rapid deceleration? _____

5 When do the forces balance again? _____

6 What happens to terminal velocity? _____

6 Rewrite using the expression in capitals.

1 The object followed a curved path. **TRAJECTORY** _____

2 Air resistance slowed the vehicle. **DRAG** _____

3 The wheel's rotation rate increased. **ANGULAR** _____

4 The mass moved repeatedly backwards and forwards. **OSCILLATED** _

OVER TO YOU

Write a **120-150 word** explanation of the motion of a vehicle, projectile or falling object.

[ ] Use at least ten target terms. [ ] Explain forces and rate changes. [ ] Distinguish path from displacement.

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ANSWER KEY

1 Kinematic concepts

1 **d** 2 **g** 3 **h** 4 **e** 5 **i** 6 **j** 7 **b** 8 **c** 9 **f** 10 **a**

2 Kinematics collocations

1 **trajectory** 2 **momentum** 3 **terminal** 4 **uniform** 5 **drag** 6 **propulsion** 7 **velocity** 8 **angular**

3 Precise terms

1 **trajectory** 2 **momentum** 3 **terminal velocity** 4 **angular velocity**
5 **drag** 6 **oscillation** 7 **propulsion**

4 Motion analysis

1 **propulsion** 2 **trajectory** 3 **acceleration** 4 **deceleration** 5 **momentum**
6 **angular velocity** 7 **drag** 8 **terminal velocity** 9 **oscillation** 10 **displacement**

5 Reading - suggested answers

1 Gravity exceeds drag. 2 Surface area. 3 Drag. 4 The increased upward force.
5 When drag balances weight. 6 It becomes much lower.

6 Rewriting - possible answers

1 This was its **trajectory**. 2 **Drag** slowed it. 3 Its **angular velocity** increased. 4 The mass **oscillated**.

Over to you: Answers will vary. Check kinematic precision, forces and causal explanation.