

G626: The Physics of Sport – Exemplar Material 2

Presentation on ‘*Equipment in Sport*’

The following pages contain:

- assessor’s comments on the actual presentation
- sample PowerPoint presentation submitted as part of a Unit G626 portfolio
- accompanying sheet provided at the end of the talk.

The candidate used the following additional visual aids:

- rope samples
- a model boat which she used to identify the various ropes.

ASSESSOR’S COMMENTARY ON MARK ALLOCATION

This part of the portfolio contains evidence for AO2.

This leaflet achieves the assessment objectives at Mark Band 2.

AO2 MB2 requires the candidate to produce an “Equipment in Sport” presentation that shows that they can identify the relevant physics principles. The candidate will relate these to the choice of material for specific sports equipment; although there may be minor errors and omissions, their explanations will be clear and accurate.

MB3 is not achieved as explanations of the underlying principles could be more thorough and the original candidate’s version contained some errors in spelling, punctuation and grammar. These have been corrected for publication.

TEACHER’S EVIDENCE included with the portfolio

This presentation was given to the group clearly and with confidence. Although there were some minor lapses in verbal grammar this did not impede understanding – indeed it was constituent with the everyday language of the audience!

The candidate kept closely to the allocated time and was able to satisfactorily answer questions from the audience, thus demonstrating an understanding of the content. The candidate is clearly an enthusiastic participant in the sport of sailing and has applied the knowledge and understanding in rigging her own boat.



GCE Applied Science
G626 – The Physics of Sport
'Equipment in Sport'

Ropes for Sailing

RECOMMENDED ROPES

Anchor and dock lines

Nylon

- Absorbs shock
- resists wear
- impervious to UV, light & chemicals

Halyards

Polyester or Kevlar

- Doesn't stretch
- strong

Painters, Rescue Lines and Tow Ropes

Polypropylene

- floats
- not dragged into propellers or lost under boats

Sheets

Polyester

- Long-wearing
- easy on the hands
- gives a good grip on winch drums - even when wet

Recommended Colour Coding

Mainsail sheet and halyard	White
Jib/genoa	Blue
Spinnaker	Red and green for guys
Travellers	Black

Construction



Plaited or braided

smooth running

Often outer cover and inner core which may be of different construction.

Braided cover used for all except anchor and dock lines.



Laid or twisted

easy to splice

but stretchy and nobbly so not free running or easy on the hands

Accompanying sheet provided at the end of the talk

Ropes

polymer	Polymer group	trade name	Significant properties	Sailing application	mass per unit of strength for 100 ft of 12.7 mm rope / kg		% elongation at failure	Cost / £ kg ⁻¹	
Nylon (polyamide)	Thermoplastic		very elastic (absorbs shock)	ideal for anchor lines	2.9		20	2	
polyester	Thermoset	Terylene	hardly stretches at all	ideal all round rope especially good for halyards	3.4		14	2	
polypropylene	Thermoplastic	Courelene	floats	good for dinghy painters and rescue lines	2.3	Lightweight	30-40	2	
Kevlar29	Polyester		very strong and non-elastic		3.9		4	25	Expensive