The final first teach date for **A Level Design and Technology: Fashion and Textiles (H405)** is **September 2026**. The final assessment opportunity for the H405 qualification will be **Summer 2028**. There is no resit opportunity.

Cambridge OCR Level 3 Advanced GCE in Design and Technology:

Fashion and Textiles (H405/02)

Problem Solving in Fashion and Textiles

Sample Resource Booklet

Version 3.2

Date – Morning/Afternoon

Time allowed: 1 hour 45 minutes

You must have:
- the Question Paper

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INSTRUCTIONS

- You must read this Resource Booklet through before answering any questions.
- The recommended reading time for this Resource Booklet is **35 minutes.**
- This Resource Booklet is to be used when answering all questions.
- The question paper tells you when to refer to the information contained in this Resource Booklet.
- This document consists of **8** pages. Any blank pages are indicated.

INFORMATION

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The stimulus in this booklet relates to issues and problems that may be encountered when travelling during a Gap Year.

GAP YEAR TRAVELLING

There are many opportunities for students to travel; be it to postpone university by travelling the world after A levels or to undertake some form of voluntary work or placement. A gap year ultimately can be a fantastic chance to explore other countries, cultures and diverse experiences. Students might decide to go trekking through a jungle, climb a mountain for charity, volunteer in a developing country, or go scuba diving, skiing or snowboarding.

Gap years have become very popular with pre and post university students over the last twenty years. There are currently approximately 230,000 young people between 18-25 years old on some form of gap year break.

However, taking a gap year can be a daunting process, particularly in organising and making decisions to ensure the student is as prepared as they can possibly be. **Table 1** below shows a document that can be downloaded from the internet to help students in their organisation and planning.

GAP YEAR PLANNING CHECKLIST		
TRAVEL	**FINANCE**	**CLOTHING**
Tickets	Travellers cheques	Coat
Insurance	Debit card	Trousers / skirts
Passport	**HEALTH**	Footwear, trekking & sandals
Visas	Medicines	Shirts / t-shirts
Maps	Medical kit	Jumpers
Guide books	Sun cream	Underclothes, socks
Phrasebooks	Mosquito repellent	Waterproofs
Itinerary	Record of immunisation	Warm/cold options
ID cards	Glasses, sunglasses, lenses	Head wear
Discount cards	**SAFETY**	Swimming costume
International driver's licence	Personal alarms	**KIT**
ACCOMMODATION	Padlocks	Rucksack
First few nights booked?	Door lock	Mosquito net
List of contacts	Money belt	Sleeping bag & sheet
COMMUNICATIONS	UK Embassy details	Wash bag
Mobile phone & charger	Agents, in country	Toiletries
Roaming SIM card	Copies of all documents e.g. passport	Razors, scissors etc.
Pre-paid telephone card	Insurance company contacts	Toilet paper
Online journal	**ACTIVITIES**	**OTHER**
	Booking confirmation	Pens
	Voluntary work, course	

Table 1

The average cost to finance a gap year is estimated at £4000.

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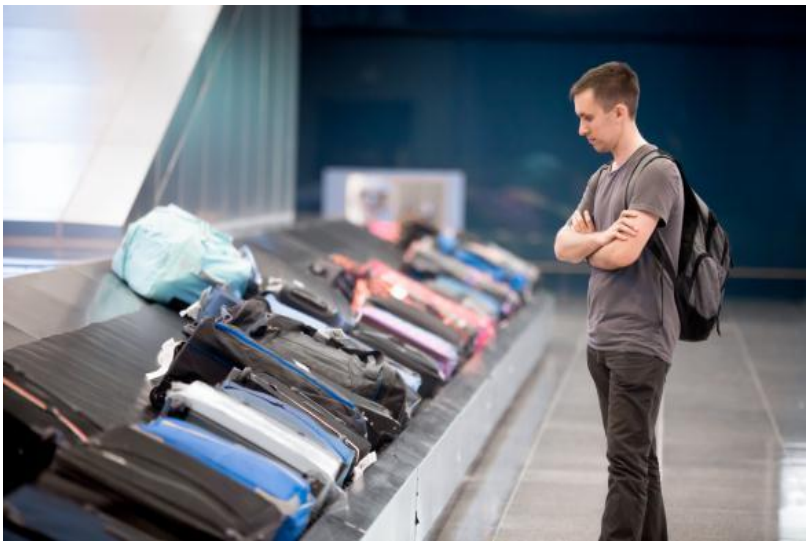
One of the main considerations when planning the trip will be to consider the correct luggage. Whilst this may seem a trivial item it is crucial for ensuring an organised and comfortable journey. The most suitable type of luggage will be a rucksack. The most important factors are that the rucksack is comfortable, it won't fall apart halfway through your trip and it makes your travels as simple as possible.

The following images show the range of issues that the average gap year student has to address when using their rucksack.



Choosing the right capacity of a rucksack
What size to choose? - 'Litres' are the unit of measurement for rucksack capacity. Rucksacks can range from 5 litre daypacks to 85 litre travel packs!

For a gap year the rucksack of choice doesn't need to be more than 70 litres. For females a 55 litre rucksack is usually sufficient and for males 65 litres. This is mainly due to weight carrying capacity without causing injury.

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Existing Products

Fig. 1

RUCKSACK SPECIFICATION	
Weight	0.88kg
Dimensions	D-21cm, H-48cm, W-36cm
Type	Outdoor
Volume	36 Litres
Cost	£59.95
Fabric	High density woven PVC
Internal	One compartment

Table 2

The rucksack must fit well and approximately 70% of the weight should feel like it sitting on the person's hips, and around 30% is being taken on shoulders. If it feels like the weight isn't distributed like this the straps may need to be adjusted.

Market Research

Following market research into previous gap year students that had travelled, the following issues were raised when questioned about the rucksacks they had used:

1. Space still required but design needs to be more compact
2. Personal belongings get stolen or can fall out
3. Difficult to find small belongings quickly
4. Very expensive
5. Seams started to come apart after a few months
6. Get very dirty and sometimes don't have the facility to wash them
7. Rain entered inside
8. Difficult to store
9. Weight needs to be evenly distributed.

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Concept Design

One of the main difficulties recorded from the market survey was the difficulty in identifying your own rucksack when travelling around. This problem arises when travelling and staying at hostels, hotels etc.. Market research has identified an opportunity for a new bag that could be used outdoors but specifically for gap year students.

The rucksack will also have the capability to charge the users mobile phone through the built-in battery that stores enough power to recharge a smartphone and laptop. The battery inside the carrier will be continually charged through the solar panel on the exterior when it is exposed to sunlight.

Fig. 2 shows a concept drawing of the rucksack design.

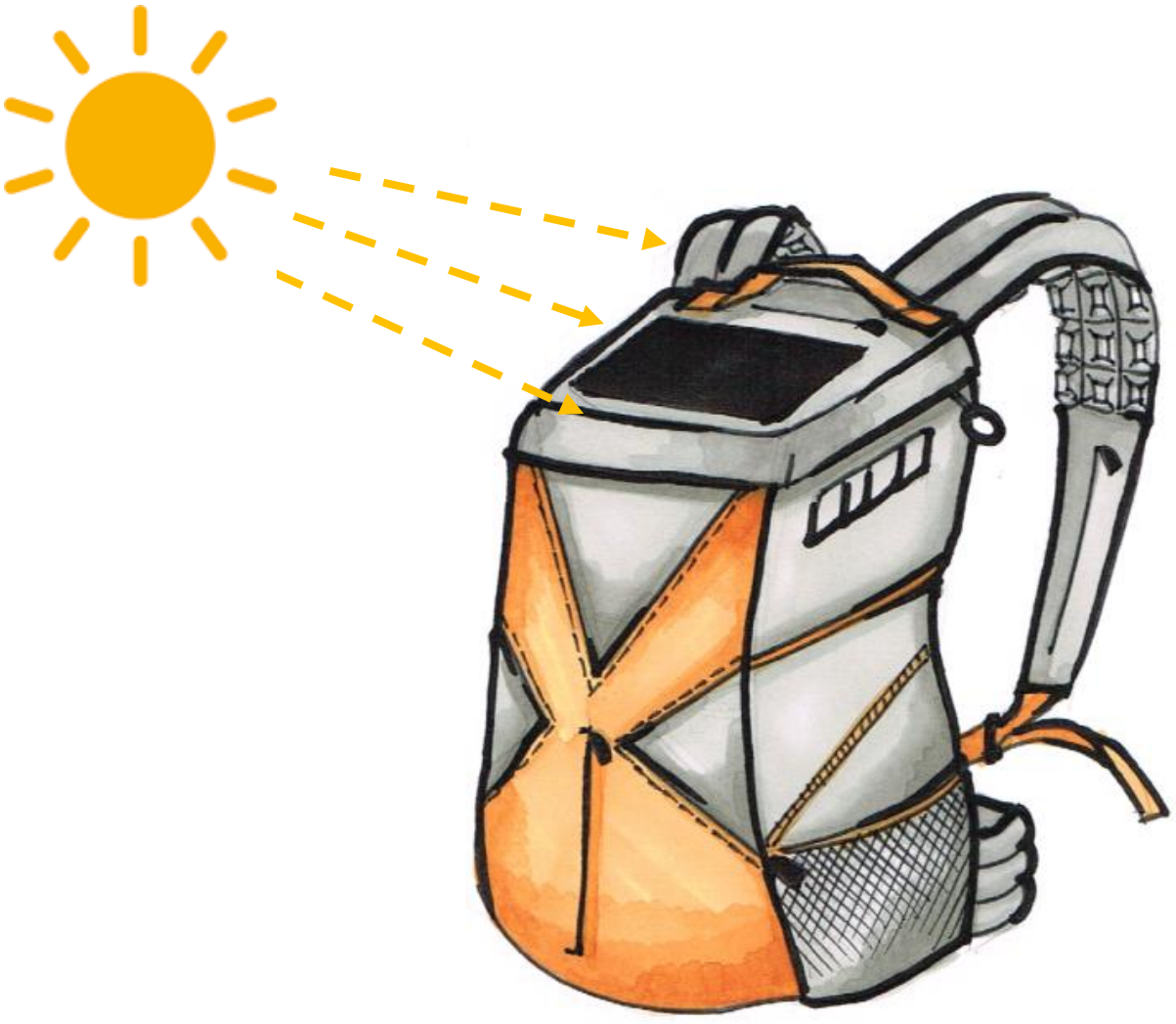

Fig. 2

The table below shows the dimensions for the current concept rucksack

Concept rucksack dimensions	
Height	500mm
Width	330mm
Depth	170mm

Table 3

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Main problems following testing
Prototypes of the rucksack have been manufactured for user testing pre mass production. The consumer reviews following testing are as follows:

- *''The seam on the base started to split after one use,''*
- *''When carrying the small handle it snapped where it is attached to the bag,''*
- *''The zip fastening allowed rain and mud to drip through to the inside.''*

Weight distribution on your back
Designing a rucksack with consideration of the weight distribution is important both in consideration of technical requirements through the design and manufacture, but also in ensuring it is as comfortable as possible for the primary user.

Fig. 3 demonstrates the principles of weight distribution to minimise the effects of the weight being carried on a primary user.

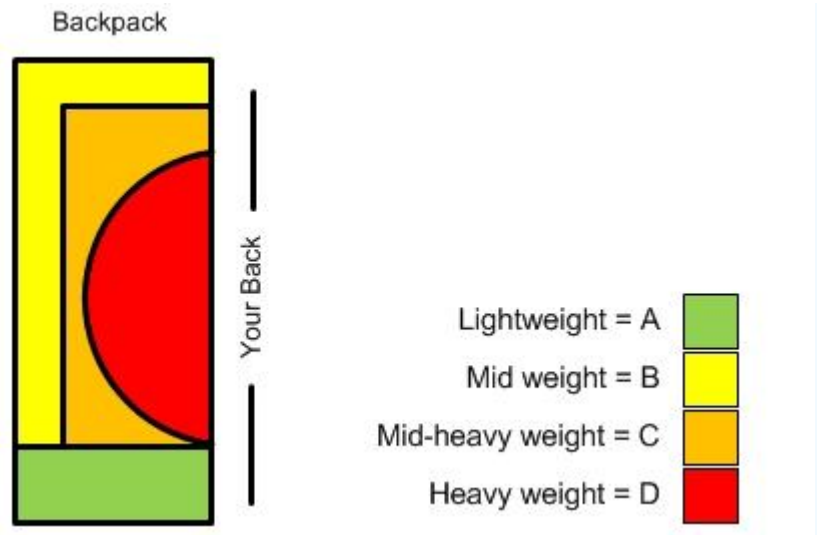

Fig. 3

Modification of Ideas
The product is a "**customisable multipurpose rucksack**".
It is a current expanding trend for companies to tailor products to the needs and wants of individual customers.

*A market research team has produced a report outlining the requirements of the new customisable multipurpose rucksack and in addition to the user being able to store essentials as seen in **Table 2** it must also be easily identifiable.*

The product is identified as a luxury item and is therefore likely to be bought as a gift for someone else, rather than being bought by the end user. Consequently, there is an opportunity for the product to be customised to increase its appeal. This will be achieved through a digital customisation platform that lets customers configure their rucksacks with a range of choices and combinations. The main retail opportunity is through an online store, and options can be selected when purchasing.

Streamlined guidelines for pack size based on trip length

Length of trip	**Pack capacity in litres**
Single day or overnight (1–2 nights)	20–30
Weekend (2–3 nights)	30–50
Multi-day (2–5 nights)	44–55
Extended (5+ nights)	55+

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Anthropometric Data

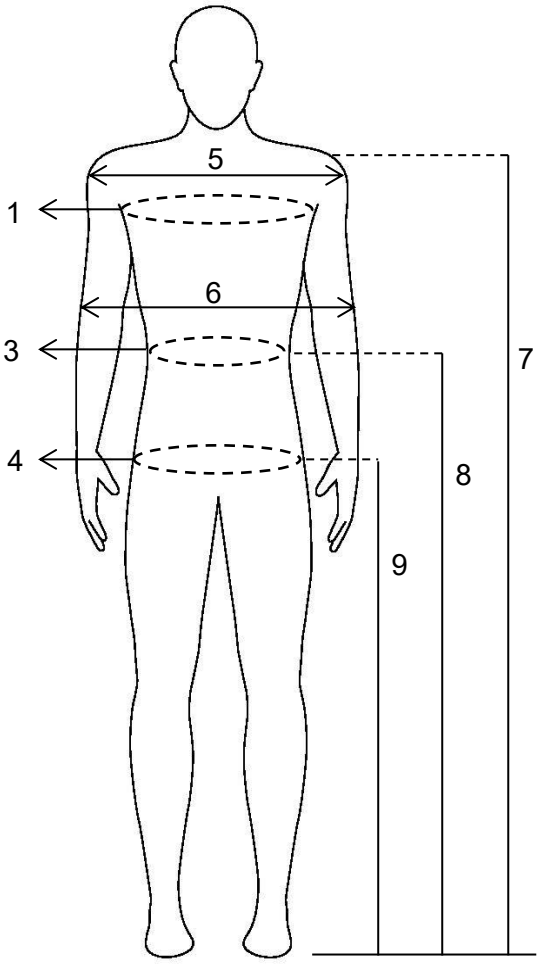
The data below could be used by a designer to consider some technical issues when designing or solving issue in the development of a rucksack.

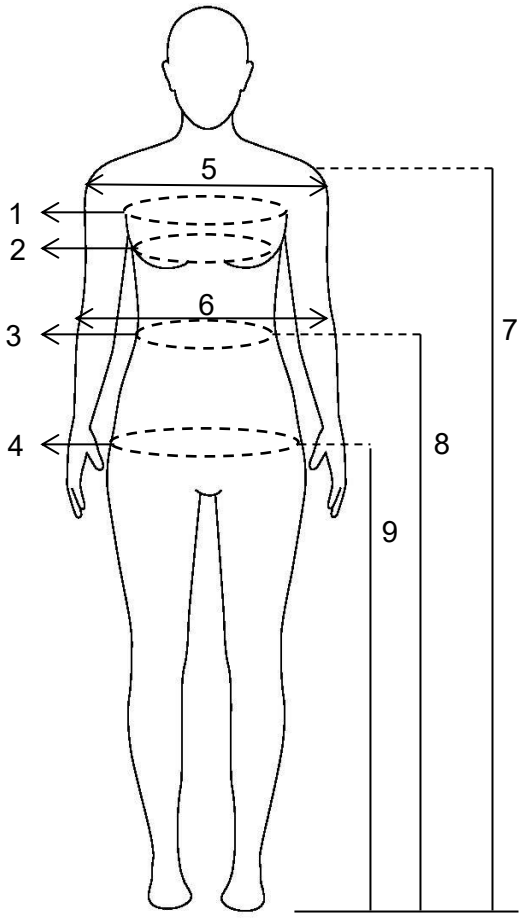
Data based on clothing sizes of adults aged between 19 and 65:

	Dimensions (cm)	Men (sizes)			Women (sizes)		
	Circumferences	XS	M	XL	XS (8)	M(14)	XL (22)
1	Chest	88.00	96.00	104.00	81.00	97.00	117.00
2	Bust	-	-	-	80.00	92.00	110.00
3	Waist	74.00	82.00	90.00	64.00	78.50	100.00
4	Hips / Seat	90.00	98.00	106.00	88.00	100.00	117.00

Data based adults aged between 19 and 65:

	Dimensions (mm)	Men (percentiles)			Women (percentiles)		
		5%	50%	95%	5%	50%	95%
5	Shoulder breadth	440	485	530	390	440	490
6	Elbow to elbow breadth	420	465	510	370	420	470
7	Shoulder height when standing	1340	1445	1550	1240	1330	1420
8	Elbow height when standing	1020	1100	1180	950	1020	1090
9	Hip height when standing	850	935	1020	750	820	890





Summary of updates

Date	Version	Details
April 2022	3.1	Updated copyright acknowledgements.
March 2026	3.2	Withdrawal information of **A Level Design and Technology: Fashion and Textiles (H405)** including final first teach date and final assessment opportunity date. Updated copyright acknowledgement

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