

Papers & Boards

Paper

Key Term

Paper: thin, flat material made from natural fibres, weighing 80-220gsm

GSM: grams per square metre.

Paper consists of fine, cellulose fibres (wood, hemp, flax, cotton, bamboo), mixed with water to create PULP, then pressed and dried.

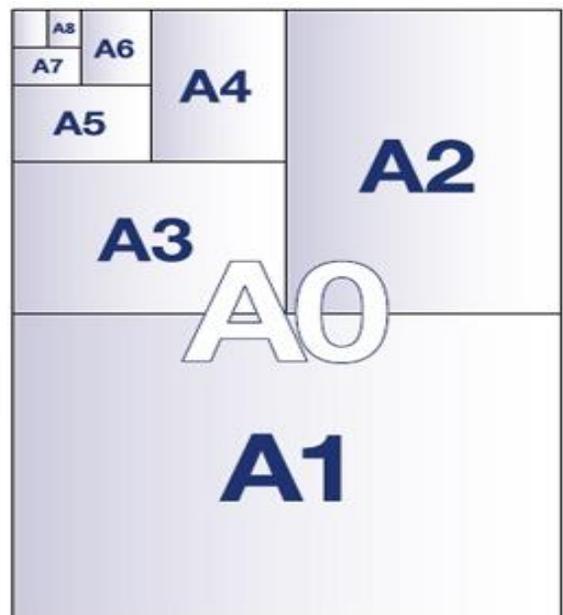
To achieve the desired finish, chemicals are added to the pulp eg brightening bleaches. It may be filled with an agent to fill holes between the fibres, to create a smooth, flat finish, or to achieve opacity, lustre and colour-absorption.

In the UK and Europe, paper is measured in GSM. Thicker paper is usually heavier and better quality.

| Type | Description | Uses | Advantages | Disadvantages |
|---------------------------------------|---|--|---|---|
| COPIER PAPER 80gsm | Thin; lightweight; cheap; bright white ; smooth; bleached; uncoated.flexible | Writing; printing; drawing | Takes colour well, good surface for pencils, pens, and markers. Cheap; widely available; range of colours | Can be prone to paper jams. |
| CARTRIDGE PAPER 120-150 gsm | Creamy, thick, heavyweight. flexible | Drawing, printing, painting | Opaque; accepts most drawing media | More expensive than paper |
| TRACING PAPER 60-90 gsm | Thin, smooth, translucent; Made by beating to remove air and processing to make it dense and strong, flexible | Art, making copies, envelope windows, overlays on working drawings | Strong, translucent | Can be expensive. Limited ink absorption. Longer drying time. |

Table of Paper Sizes

| Size | Width x Height (mm) |
|------|---------------------|
| 4A0 | 1682 x 2378 mm |
| 2A0 | 1189 x 1682 mm |
| A0 | 841 x 1189 mm |
| A1 | 594 x 841 mm |
| A2 | 420 x 594 mm |
| A3 | 297 x 420 mm |
| A4 | 210 x 297 mm |
| A5 | 148 x 210 mm |
| A6 | 105 x 148 mm |
| A7 | 74 x 105 mm |
| A8 | 52 x 74 mm |
| A9 | 37 x 52 mm |
| A10 | 26 x 37 mm |



Fold the paper in half to achieve the next size down

copier

cartridge

tracing

Glue sample here

Glue sample here

Glue sample here

| Property | Description |
|-----------------------|--|
| Flexibility/stiffness | Amount material bends when a force is applied (stiffness). Depends on thickness & weight. Flexural stiffness is resistance to an external bending force. Handling stiffness is the ability to support its own weight. |
| Printability/porosity | Ability to accept a printed image on its surface. Affected by surface properties (smoothness/finish) and structural properties (bulk/thickness). Not same as print quality, which is determined by other factors such as plate alignment on the printing plates. |
| Biodegradability | Ability to be broken down by bacteria or other biological means. Most uncoated paper are biodegradable as they are made from wood pulp. Compostable means a material can biodegrade in less than 12 weeks. |

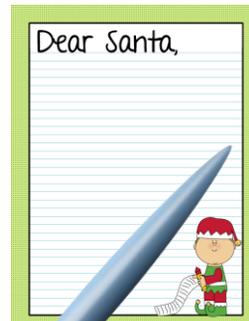
1. What is paper? _____ [1]

2. How many paper products have you used today? _____ [1]
3. Explain why printability might affect the choice of paper. _____ [1]

4. Which type of paper might a watercolour artist use? _____ [1]
5. Tracing paper is translucent. How might this paper be useful? _____ [1]

6. Name a disadvantage of copier paper. _____ [1]

7. Which of the three papers is heaviest? _____ [1]
8. Which paper would you use to :
Trace a picture? _____
Write a thankyou letter to Santa? _____
Paint on? _____
Photocopy an essay onto? _____
Apply an image onto wood? _____ [5]
9. a) Which is the smallest official size of paper? A ____ (____ mm x ____ mm).
b) What are the dimensions of A3 paper? _____
c) What size of paper are these questions printed on? _____ [3]
10. Find samples of copier, cartridge and tracing paper. Glue them onto the space provided overleaf. [3]



Total: _____
18

Papers & Boards

Board

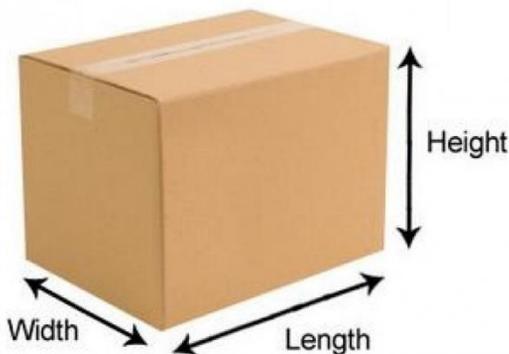
Key Term

Board: thick paper or layers of paper more than 220gsm.

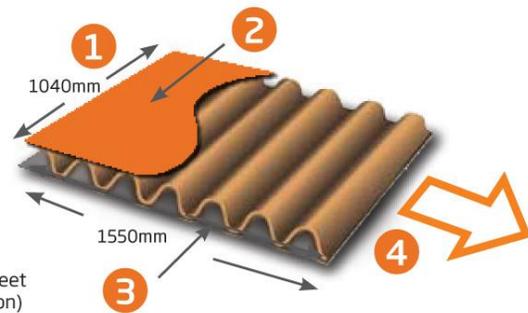
Board thickness is measured in microns which is 1/1000 of a mm.

μ

| Type | Description | Uses | Advantages | Disadvantages |
|---------------------------------------|---|--|---|---|
| Folding boxboard (cartonboard) | Stiff layers consisting of: 1. A printable bleached virgin pulp top surface 2. Unbleached yellowish centre layers 3. A bleached inside layer | Cereal boxes, food and health care packaging, cartons | Excellent for scoring and bending without splitting. Accepts print well Inexpensive Foldable | Lower strength than solid white board. |
| Corrugated board | 2 or more layers of fluted paper sandwiched between 2 paper liners. Usually brown | Protective packaging, eg boxes for electrical products | Impact resistant, inexpensive, recyclable foldable | Brown finish does not convey quality. Can deform under pressure. Not water resistant. |
| Solid white board | Strong, rigid board made from pure, bleached wood pulp. Excellent printing surface. | Book covers, food, cosmetics and medicine packaging | Strong. Rigid. Accepts print well. | Can be expensive. |



- 1 Chop (Length of Sheet)
- 2 Top Liner (Outside of Material)
- 3 Bottom Liner (Inside of Material)
- 4 Flute Direction - width of Sheet (Corrugator Machine Direction)



1. What is board? _____ [1]

2. How many products have you touched today, that are made from board? _____ [1]
3. a) Which type of board is used for cereal boxes? _____
b) Why do you think this is? _____ [2]

4. a) Name a product that is made from solid white board. _____
b) Why do you think this is? _____ [2]

5. a) Which symbol is used to display a board's thickness? Draw it in this box: [2]
a) Which measurement does this symbol represent? _____
6. Corrugated board has a flute layer. What purpose does this serve? _____ [1]

7. a) Which type of board is used to contain a Marks & Spencer's sandwich?
_____ [2]
a) Why might this type of board be useful to give information about the ingredients?

8. Explain why printability might affect the choice of board for packaging. _____ [2]

9. Collect samples of each type of board you need to know about. Paste them below.

Folding Boxboard

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|--|
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|--|

Corrugated Board

| |
|--|
| |
|--|

Solid White Board

| |
|--|
| |
|--|

[3]

| |
|--------------|
| Total: _____ |
| 16 |