

## Caring for paper

Until the eighteenth century, most papers were made by hand from linen or cotton rags and many of the surviving examples of these papers are in better condition than paper produced from wood pulp. The changes brought about by the industrial revolution caused a dramatic increase in the demand for paper, out-stripping the supply. New methods of paper production were required to meet this demand and to keep the price of paper at realistic levels.

Paper made from ground wood pulp contains lignin. Lignin is present in all plants to a greater or lesser extent and gives them their rigidity. It is this that contributes to the deterioration of paper made from wood.

Wood pulp that is chemically treated can produce relatively strong good quality paper, as the chemical process has removed most of the lignin. However, the process leaves the paper fibres soft and short, though more modern processes can produce a stronger fibre.

Modern paper contains many other ingredients besides the fibre content, such as fillers, dyes, brighteners and resins. All of these components have an effect on the properties of the paper.

### Handling

Ensure that hands and table surfaces are clean. Surface dust may be gently removed with a clean soft brush, but any intensive cleaning should be left to a conservator. Use only soft lead pencils (2B) when annotating documents. Remove paperclips, staples, adhesive notes such as *Post-it*.

Original papers which are used frequently should be copied and then stored safely in archival quality enclosures. Repeated copying or prolonged exposure to photographic lights is damaging, so additional copies should be taken from the duplicate. Avoid the use of thermal papers when making copies, as they are unstable and the print will fade.

### Causes of damage

All materials carry within them the causes of their own destruction, but there are also external factors that can initiate or speed up the process of deterioration. These factors are light, temperature, relative humidity, air cleanliness, biological agents and human factors. There is not much we can do about the inherent properties of various materials but there is a lot that can be done to reduce the damage from external factors.

Light is a form of energy, which can initiate or accelerate chemical reactions that damage paper. The extent of damage can vary according to the type of light, the sensitivity of the materials and the particular chemical reactions taking place within them. All light causes damage and this damage is cumulative, building up over a period of time. While damage is inevitable with any exposure to light, by controlling light levels and limiting the time items are exposed, we can slow down the rate of damage considerably.

Particulate pollutants such as dust, soot, salt and mould spores and gaseous pollutants such as carbon dioxide, nitrogen oxides and ozone are examples of atmospheric pollutants. Good housekeeping is essential, to minimise exposure to particulates.

### Storage methods and materials

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Sheet protectors and display books are convenient for storing originals or duplicates, but avoid PVC. Purchase polyester (Mylar), polypropylene or polyethylene products instead which are chemically stable.

Paper based items should never be laminated as the process is irreversible. Do not use self adhesive pressure sensitive tapes on tears, as they may cause staining and irreversible damage as they age.

Archival storage containers with close-fitting lids will keep out dust, light and pests and reduce fluctuations in temperature and humidity. Containers should be large enough to fit the object without folding.

Large format material is best stored flat in a plan cabinet with shallow drawers. Interleave with acid-free buffered paper and avoid overfilling the drawers. Avoid rolling large items (e.g., maps); but if this is unavoidable, it is safer to roll around a large diameter tube which is then covered with a sturdy material and clearly labelled.

### **Mounting and framing**

Prints and drawings, whether framed or not, should always be stored in a window mount. This protects the work from damage during storage and from handling. It also prevents the work coming into contact with glazing when framed and helps prevent condensation and consequential mould growth.

Use the best quality materials for mounting that you can afford. Ideally museum quality or conservation mounts with separate front and backboards hinged with cloth tape. Artworks should always be hinged to the backboard using Japanese tissue hinges adhered with a conservation-grade removable paste, allowing it to hang freely in the mount and react to changing environmental conditions.

### **For more information:**

If your paper object requires special attention you may contact a paper conservator at the email address below. They can advise about the safest means by which to stabilise, conserve and restore your object.

[conservation@anmm.gov.au](mailto:conservation@anmm.gov.au)