

CLASS 6

SCIENCE

NCERT SOLUTIONS

## NCERT Solutions for Class 6 Science Chapter 9: Methods of Separation in Everyday Life – Free PDF Download

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Chapter 9 of the Class 6 Science textbook Curiosity is Methods of Separation in Everyday Life. The chapter follows siblings Malli and Valli as they travel across India and see different separation methods used in daily life — from farms in Haryana to salt pans near Ahmedabad, a kitchen in Puducherry, a dhaba in Bh...

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Chapter 9 of the Class 6 Science textbook *Curiosity* is Methods of Separation in Everyday Life. The chapter follows siblings Malli and Valli as they travel across India and see different separation methods used in daily life — from farms in Haryana to salt pans near Ahmedabad, a kitchen in Puducherry, a dhaba in Bhopal, and a carpenter’s workshop in Shillong. These solutions answer the chapter’s “Let Us Enhance Our Learning” questions.

## Why Do We Separate Mixtures?

A **mixture** is a combination of two or more substances that are not chemically combined. We separate mixtures for two main reasons: (1) to remove an unwanted or harmful component (like removing stones from grain), and (2) to separate two different but both-useful components (like separating butter from buttermilk).

## Methods of Separation Covered in This Chapter

**Handpicking** — manually picking out visibly different components, used when the impurity is small in quantity (e.g., removing stones and husk from grain, or picking peppercorns out of pulao)

**Threshing** — beating harvested wheat stalks on a wooden log to knock the grain loose from the stalk

**Winnowing** — using a bamboo tray (soop) and wind to blow away the lighter husk, leaving the heavier grain behind

**Sieving** — passing a mixture through a sieve to separate components by particle size (e.g., sifting wheat flour for puri, or separating sand from pebbles at a construction site)

**Sedimentation** — heavier, insoluble solid particles settling at the bottom of a liquid on standing (e.g., tea leaves settling to the bottom of a cup)

**Decantation** — carefully pouring off the clear liquid from above a settled sediment, without disturbing it

**Filtration** — separating an insoluble solid from a liquid using a porous filter such as a tea strainer, cloth, or filter paper; the liquid that passes through is called the filtrate

**Evaporation** — turning a liquid into vapour to recover a dissolved solid, such as getting salt from seawater

**Churning** — agitating curd with a mathni so that butter clumps together and separates from the buttermilk (chhach)

**Magnetic separation** — using a magnet to pull out magnetic material, such as separating iron nails from sawdust in a carpenter’s workshop

**Note:** this chapter does not cover distillation, sublimation, chromatography, or centrifugation — those more advanced separation techniques are introduced in later classes.

## Let Us Enhance Our Learning — Answers

**Q1. What purpose does handpicking serve? (i) Filtration (ii) Sorting (iii) Evaporation (iv) Decantation**

Ans: (ii) Sorting.

**Q2. Which substances are commonly separated by churning? (i) Oil from water (ii) Sand from water (iii) Cream from milk (iv) Oxygen from air**

Ans: (iii) Cream from milk.

**Q3. Which factor is essential for filtration? (i) Apparatus size (ii) Presence of air (iii) Pore size (iv) Temperature**

Ans: (iii) Pore size — the filter's pore size determines what passes through and what is retained.

**Q4. State whether True or False, with a reason:**

(i) Salt can be separated from salt solution by keeping it under the Sun.

Ans: True — the Sun's heat evaporates the water, leaving the salt behind.

(ii) Handpicking should be used only when the quantity of one component is less.

Ans: True — handpicking is practical only for small amounts of impurity; it is too slow for large quantities.

(iii) A mixture of puffed rice and rice grains can be separated by threshing.

Ans: False — threshing separates grain from stalks; two types of grain-like particles of similar composition need sieving or handpicking instead.

(iv) Sieving is used to separate mustard oil and lemon water.

Ans: False — sieving separates solids by particle size; two liquids that don't mix need decantation, not sieving.

(v) Filtration can separate a dissolved substance like salt from water.

Ans: False — filtration only removes insoluble, undissolved particles; a dissolved solid like salt passes through the filter along with the water and needs evaporation instead.

**Q5. Match the following mixtures to their separation method:**

Gram flour + black gram → Handpicking

Chalk powder + water → Filtration

Corn + potatoes → Sieving

Iron powder + sawdust → Magnetic separation

Oil + water → Decantation

**Q6. In what situations would you use decantation instead of filtration?**

Ans: Decantation works well when the insoluble solid settles clearly to the bottom and only the clear liquid on top needs to be poured off — for example, muddy water or tea. It is quicker than filtration when a fully clear liquid is not required immediately, though some fine particles may still remain suspended, which is why filtration often follows decantation for a completely clear liquid.

**Q7. Can you relate nasal hair to a separation process?**

Ans: Yes — nasal hair acts like a natural filter, trapping dust particles and other impurities from the air we breathe in, preventing them from reaching the lungs.

**Q8. What material are masks made of, and what is their separation role?**

Ans: Masks are typically made of layered fabric or non-woven material that acts as a filter, blocking dust particles, droplets, and germs from passing through while still allowing air to be breathed in and out.

**Q9. Given a mixture of potatoes, salt, and sawdust mixed with water, describe how you would separate them.**

Ans: First, handpick the potatoes out, since they are large and easy to spot. Add water to the remaining salt-sawdust mixture; sawdust floats, so it can be filtered out or skimmed off. What remains is a salt solution, from which the salt can be recovered by evaporation.

**Q10. Read the story of “Intelligent Leela” purifying muddy pond water and answer the questions.**

Ans: Leela first lets the muddy water stand so the heavier mud particles settle (sedimentation), then decants and filters the water through a muslin cloth to remove remaining fine particles, and finally boils the water to make it safe to drink. A suitable title for the story would highlight her step-by-step, practical approach to purifying water using everyday separation methods.

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