N5 Biology **MO7** **Absorption of Materials** Learning Outcome Checklist

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| lesson | MC900432651[1] | by the end of each lesson you should know about the following (including meanings of **key words**) |
| absorption of materials |  | * **oxygen** and **nutrients** from food must be **absorbed** into the bloodstream to be delivered to cells for **respiration**.
* **waste materials**, such as carbon dioxide, must be **removed** from cells into the bloodstream.
* surfaces involved in the absorption of materials have certain features in common: **large surface area**, **thin walls,** **extensive blood supply**.
* these features increase the **efficiency** of absorption.
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| capillary networks |  | * **tissues** contain capillary networks to allow the exchange of materials at **cellular** level
* capillaries have **thin walls** to allow efficient diffusion
* the **network of capillaries** ensures all cells are close to the blood supply
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| lungs |  | * **lungs** are **gas exchange** organs, allowing blood and air to come close for **oxygen** to diffuse into the blood from the lungs and **carbon** **dioxide** to diffuse out of the blood into the lungs
* in the lungs, at the end of the airways there are many **alveoli** providing a large surface area.
* the alveoli have a rich supply of blood capillaries
* **oxygen** diffuses across the thin alveolar walls into the many blood capillaries.
* **carbon dioxide** diffuses into the alveoli across the thin alveolar wall from the many blood capillaries
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| small intestines |  | * in the digestive system, large food molecules are broken down to small soluble molecules
* starch is broken down into **glucose**; proteins are broken down into **amino acids**; fats are broken down into **fatty acids and glycerol**
* the small intestine contains finger-like projections called **villi**
* the end products of digestion from food are absorbed into the villi
* the villi provide **a large surface area for absorption**, **their walls are only one cell thick**
* each villus is closely associated with a network of **capillaries to absorb glucose and amino acids** and a **lacteal to absorb fatty acids and glycerol.**
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