

English-Chinese Glossary of Key Terms for B1-B5

B1 Characteristics of living organisms (生物的特征)

| English Term | Chinese Translation |
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| movement | 运动 (An action by an organism or part of an organism that causes a change in position or place) |
| respiration | 呼吸 (Chemical reactions in cells that break down nutrient molecules and release energy for metabolism) |
| sensitivity | 感应性 (The ability to detect and respond to changes in the internal or external environment) |
| growth | 生长 (A permanent increase in size and dry mass) |
| reproduction | 繁殖 (The processes that produce more organisms of the same kind) |
| excretion | 排泄 (The removal of waste products of metabolism and substances in excess of requirements) |
| nutrition | 营养 (The intake of materials for energy, growth and development) |

B2 Cells (细胞)

| English Term | Chinese Translation |
|----------------|---------------------|
| plant cell | 植物细胞 |
| animal cell | 动物细胞 |
| bacterial cell | 细菌细胞 |
| cell wall | 细胞壁 |
| cell membrane | 细胞膜 |
| nucleus | 细胞核 |
| cytoplasm | 细胞质 |

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| chloroplasts | 叶绿体 |
| ribosomes | 核糖体 |
| mitochondria | 线粒体 |
| vacuoles | 液泡 |
| circular DNA | 环状 DNA (A form of genetic material in bacterial cells) |
| plasmids | 质粒 (Small additional circular DNA molecules in bacterial cells) |
| cell | 细胞 (The basic unit of structure and function in living organisms) |
| tissue | 组织 (A group of cells with similar shape and the same function) |
| organ | 器官 (A structure composed of different tissues arranged in a certain order to perform a specific function) |
| organ system | 器官系统 (A system formed by the coordination of multiple functionally related organs) |
| organism | 生物体 (An individual that can independently carry out life activities, composed of organ systems) |
| magnification | 放大率 (The ratio of image size to actual size) |
| image size | 像大小 |
| actual size | 实际大小 |
| millimetres (mm) | 毫米 (A unit of length) |
| micrometres (µm) | 微米 (A unit of length, 1mm = 1000µm) |
| specialised cells | 特化细胞 (Cells with specific functions) |
| root hair cells | 根毛细胞 (Cells whose main function is to absorb water and |

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| | inorganic salts) |
| palisade mesophyll cells | 栅栏叶肉细胞 (Cells whose main function is to carry out photosynthesis) |
| red blood cells | 红细胞 (Cells whose main function is to transport oxygen) |

B3 Movement into and out of cells (物质进出细胞的方式)

| English Term | Chinese Translation |
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| diffusion | 扩散 (The net movement of particles from a region of higher concentration to a region of lower concentration, resulting from random movement) |
| concentration gradient | 浓度梯度 (The trend of particle concentration changing from high to low) |
| osmosis | 渗透 (The net movement of water molecules through a partially permeable membrane from a region of higher water potential to a region of lower water potential) |
| partially permeable membrane | 半透膜 (A membrane that allows certain substances to pass through while preventing others from passing through) |
| water potential | 水势 (A physical quantity that measures the ability of water molecules to diffuse; dilute solutions have high water potential, while concentrated solutions have low water potential) |
| turgid | (细胞) 膨胀的 (The state of plant cells when they absorb water and are restricted from swelling by the cell wall) |
| turgor pressure | 膨压 (The pressure exerted by the cytoplasm on the cell wall when plant cells absorb water) |
| plasmolysis | 质壁分离 (The phenomenon where the protoplast shrinks away from the cell wall when plant cells lose water) |
| flaccid | (细胞) 萎蔫的 (The state of plant cells when they lose water and lose turgor pressure) |

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| active transport | 主动运输 (The movement of particles through a cell membrane from a region of lower concentration to a region of higher concentration, requiring energy produced by respiration) |
| surface area | 表面积 (One of the factors affecting the rate of diffusion; the larger the surface area, the faster the diffusion) |
| temperature | 温度 (One of the factors affecting the rate of diffusion; the higher the temperature, the faster the particle movement and the faster the diffusion) |
| distance | 距离 (One of the factors affecting the rate of diffusion; the shorter the distance, the faster the diffusion) |

B4 Biological molecules (生物分子)

| English Term | Chinese Translation |
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| carbohydrates | 糖类 (Organic compounds composed of carbon, hydrogen and oxygen, and the main source of energy) |
| fats | 脂肪 (Organic compounds composed of carbon, hydrogen and oxygen, and a storage substance for energy) |
| proteins | 蛋白质 (Organic compounds composed of carbon, hydrogen, oxygen, nitrogen, etc., and the main undertaker of life activities) |
| glucose | 葡萄糖 (A monosaccharide, one of the basic units of carbohydrates, which can be directly used by cells for energy supply) |
| amino acids | 氨基酸 (The basic building units of proteins) |
| fatty acids | 脂肪酸 (One of the components of fats) |
| glycerol | 甘油 (One of the components of fats) |
| starch | 淀粉 (A polysaccharide polymerized from glucose, and a storage substance in plant cells) |
| glycogen | 糖原 (A polysaccharide polymerized from glucose, and a storage |

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| | substance in animal cells) |
| cellulose | 纤维素 (A polysaccharide polymerized from glucose, and the main component of plant cell walls) |
| iodine solution | 碘液 (A reagent used to detect starch, which turns blue when it meets starch) |
| Benedict's solution | 本尼迪克特试剂 (A reagent used to detect reducing sugars, which produces a red-yellow precipitate when heated with reducing sugars) |
| biuret test | 双缩脲试剂 (A reagent used to detect proteins, which turns purple when it meets proteins) |
| ethanol emulsion test | 乙醇乳浊液试验 (A method used to detect fats; when fats are mixed with ethanol and water is added, a white emulsion is formed) |

B5 Enzymes (酶)

| English Term | Chinese Translation |
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| proteins | 蛋白质 (The chemical nature of enzymes) |
| biological catalysts | 生物催化剂 (A functional property of enzymes that can reduce the activation energy of reactions, speed up reaction rates and not be consumed itself) |
| metabolic reactions | 代谢反应 (A general term for all chemical reactions in cells, in which enzymes participate and regulate) |
| active site | 活性位点 (A specific region on the enzyme molecule that binds to the substrate and has a specific spatial structure) |
| enzyme-substrate complex | 酶 - 底物复合物 (The structure formed after the enzyme binds to the substrate, which is the intermediate state of the reaction) |
| substrate | 底物 (The specific substance that the enzyme acts on) |
| product | 产物 (The substance produced after the enzyme catalyzes the |

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| | substrate reaction) |
| specificity | 特异性 (A property where an enzyme usually acts on only one or a class of substrates, resulting from the structural complementarity between the active site and the substrate) |
| temperature | 温度 (A factor affecting enzyme activity; enzyme activity is the highest at an appropriate temperature, and excessive temperature will cause enzyme denaturation) |
| pH | 酸碱度 (A factor affecting enzyme activity; each enzyme has an optimal pH, and deviation from this pH will affect enzyme activity and even cause denaturation) |
| kinetic energy | 动能 (One of the mechanisms by which temperature affects enzyme activity; as temperature increases, the kinetic energy of enzyme and substrate molecules increases, and the probability of effective collisions increases) |
| denaturation | 变性 (A phenomenon where the spatial structure of the enzyme is destroyed, leading to the loss of its activity, usually caused by high temperature, excessive acidity or alkalinity) |
| effective collisions | 有效碰撞 (Collisions between enzyme and substrate molecules that can trigger reactions, requiring appropriate direction and energy reaching the activation energy) |