AP ENVIRONMENTAL SCIENCE • EXERCISE SHEET

1.11 Food Chains and Food Webs

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

Build the skills to answer exam questions on **food chains and food webs**.

You must be able to:

- distinguish a **food chain** 食物链 from a **food web** 食物网
- trace energy flow and read arrows correctly
- predict the effect of removing a species

1 Worked examples

Study these first. Each one shows the method for a question type used later —follow the steps and you can do the Practice and Exam-style questions yourself.

Chains vs webs

A **food chain** is a single line of who-eats-whom. A **food web** links **many** chains into a realistic picture of feeding relationships.

Arrows show energy flow

The arrow points **from** the organism eaten **to** the organism that eats it —it shows the direction energy flows (prey → predator).

Removing a species

Because species are connected, **removing** one has knock-on effects: its prey may increase, and its predators lose a food source. A **keystone species** has an outsized effect.

A worked prediction

If foxes are removed from a web, rabbits (their prey) may increase, over-grazing plants; species competing with rabbits may decline.

2 Practice

Now apply the methods above.

2.1 What is the difference between a food chain and a food web? [1]

2.2 In a food chain, which way does the arrow point? [1]

2.3 What is a keystone species? [1]

---

3 Exam-style questions

3.1 In a food web, an arrow from a rabbit to a fox shows that [1]

- **A** the rabbit eats the fox
- **B** energy flows from the rabbit to the fox
- **C** they do not interact
- **D** the fox is a producer

3.2 In a food web, hawks eat both snakes and mice.

(a) Predict what happens to the mouse population if hawks are removed. [2]

(b) Explain why a food web is more realistic than a single food chain. [1]

3.3 Explain why removing a keystone species can have a large effect on a food web. [2]

4 Go further

You are now ready for the real exam questions on this subtopic:

- work through the **1.11 Food Chains and Food Webs** lesson on the **Learn** page;
- read the **Food Chains and Food Webs** section of the AP Environmental Science handout on the **Know** page.

Solutions

2.1 A food chain is a single line of feeding; a food web links many chains together.

2.2 From the organism eaten to the one that eats it (prey → predator).

2.3 A species with an outsized role whose removal greatly affects the community.

3.1 B —energy flows from the rabbit to the fox.

3.2 (a) With fewer predators, the mouse population is likely to increase. (b) Most organisms eat and are eaten by several species, which a web shows but a single chain does not.

3.3 A keystone species affects many others (e.g. by controlling prey numbers); removing it lets some populations grow and others shrink, changing the whole web.