

Solutions

Each answer shows the steps, then the **result**.

2.1

- cerebellum: coordinates balance and practised movement; amygdala: supports emotional processing, especially fear

2.2

- the brain's capacity to reorganise its structure and connections in response to experience or injury; greatest in childhood but continuing across life

2.3

(a)

- plasticity

(b)

- a child's brain reorganises more readily, so other regions can take over the function

3.1 B

- EEG records electrical activity directly, with excellent temporal resolution

3.2 B

- specialisation is a difference of degree between connected hemispheres

3.3

(a)

- forming new long-term memories

(b)

- memory is not a single system: the ability to form new memories can be lost while immediate conversation and older memories remain intact

3.4

(a)

- Effortful, fragmented speech with comprehension intact — **Broca's area**, in the left frontal lobe (1). Unsteadiness and loss of balance — the **cerebellum** (1). Failure to form new memories of events — the **hippocampus** (1)

(b)

- Wernicke's area governs the **comprehension** of language, and she understands everything said to her, so it must be undamaged (1)

(c)

- The hippocampus **consolidates** new information into long-term memory (1); once memories are consolidated they are stored elsewhere in the cortex, so old memories survive the damage while new ones can no longer be laid down — anterograde amnesia (1)

(d)

- fMRI shows activity in the **living** brain while she performs a task, so the researcher can see which areas are and are not recruited without waiting for post-mortem examination, and can compare her activity with that of healthy participants (1)