ANSWER KEY.

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Organelles

Biology | ANSWER KEY

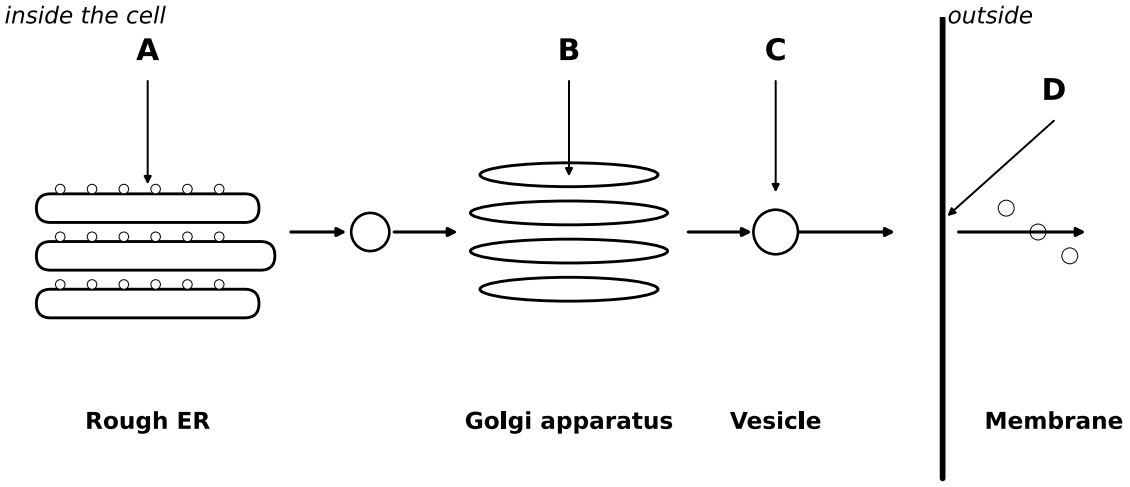
Answer in complete sentences. Use the tables, graphs, and drawings as evidence.

1. Name the organelle that does each job.

Job	Organelle
(a) Holds the DNA of the cell	**Nucleus**
(b) Builds proteins by reading mRNA	**Ribosome**
(c) Uses food and oxygen to make ATP	**Mitochondrion**
(d) Modifies, sorts, and packages proteins	**Golgi apparatus**

Use the organelle names: nucleus, ribosome, mitochondrion, Golgi apparatus.

2. The drawing shows the path of a protein that a cell releases. Name structures A, B, and C.



A _____ B _____ C _____

(d) What happens at D?

A: rough ER; B: Golgi apparatus; C: vesicle (secretory vesicle). (d) **The vesicle fuses with the cell membrane and releases the protein outside the cell.**

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3. Scientists gave a cell radioactive amino acids for a short time, then followed where the labeled protein went.

Time (min)	Rough ER (%)	Golgi (%)	Vesicles near membrane (%)	Outside cell (%)
3	85	10	5	0
20	25	60	15	0
40	8	30	62	0
120	3	5	22	70

Write a claim, evidence, and reasoning about the path the protein takes. Include the time each location peaked.

Claim: the protein moves from the rough ER to the Golgi apparatus to vesicles and then out of the cell. **Evidence:** the label peaked in the rough ER at 3 min (85%), in the Golgi at 20 min (60%), in vesicles near the membrane at 40 min (62%), and outside the cell at 120 min (70%). **Reasoning:** each location peaks later than the one before it, so the protein passes through them in that order, as in the model.

4. A poison stops the mitochondria of a cell. Predict what will happen to the cell's ability to build and move proteins. Explain your prediction.

Protein building and vesicle movement will slow or stop. Mitochondria make most of the cell's ATP, and ribosomes and vesicle transport use ATP.

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