Experimental Design

Hydrogen sulfide is a by-product of many industrial manufacturing processes. A stream ecologist is interested in potential effect of hydrogen sulfide on local fish populations--especially the early stages of development.

To investigate this, he sets-up 4 fish tanks into which he places 100 brown-trout eggs produced by the same parents. At the end of a 3-week period he measures the number of fish that have hatched in each tank.

Each aquarium is maintained at the same temperature and pH, receives the same amount of light, and is maintained at similar oxygen and carbon dioxide concentrations.

The scientist does vary the hydrogen sulfide concentration in the tanks. Tank A is maintained at 0 ppm, Tank B at 25 ppm, Tank C at 50 ppm, and Tank D at 75 ppm.

The scientist observes the following results at the end of 3 weeks:

Tank	Hydrogen Sulfide (ppm)	Number of Fish Hatched
A	0	72
B	25	60
C	50	40
D	75	32

In the investigation above, identify:

independent variable:

dependent variable:

controlled variables:

control group: