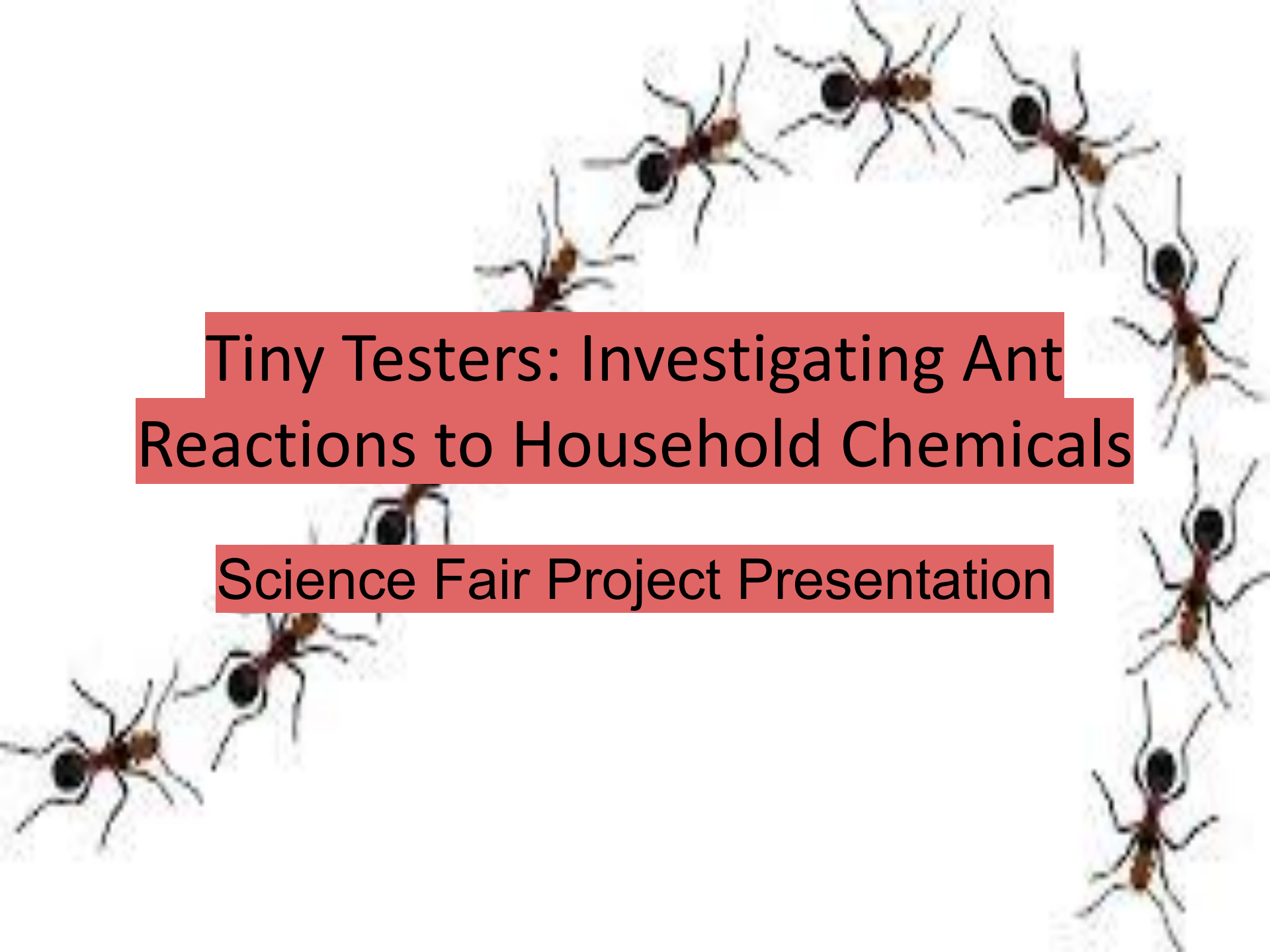

Tiny Testers: Investigating Ant Reactions to Household Chemicals

Science Fair Project Presentation

Problem

- How do ants respond to different household substances
- (bleach, vinegar, sugar water, coffee, lemon juice)
- in terms of behavior and survival?

Hypothesis

- Null: Household substances will have no effect on ant behavior or survival.
- Alternative: Different substances will cause different
- behavioral or survival responses in ants.

Variables

- Independent Variable: Type of household substance used
- Dependent Variable: Ant behavior and survival
- Constants: Same ants, container, sprays, time, location
- Control: Ants with no substance applied

Materials

- Clear containers with lids
- Spray bottles
- Bleach, vinegar, lemon juice
- Sugar water, coffee
- Measuring tools, timer, phone
- Gloves and goggles

Procedure (Summary)

- 1. Measure 10 mL of each substance.
- 2. Place 5 ants in container.
- 3. Spray 3 sprays of substance.
- 4. Observe for 45 seconds.
- 5. Record behavior and survival.
- 6. Repeat 3 trials per substance.

Results Data

- Bleach – 75-80% survival – Very active
- Vinegar – 75-80% survival – Active
- Coffee – 75-80% survival – Active
- Sugar water – 100% survival – Very active
- Lemon juice – 100% survival

Abstract

- This experiment tested how ants react to five
- household substances. Sugar water and lemon juice
- had 100% survival. Bleach, vinegar, and coffee
- had about 80% survival.
- Most deaths were caused by drowning, not toxicity.

Conclusion

- The hypothesis was mostly not supported.
- Household chemicals affected behavior more than survival.
- Sugar water attracted ants.
- Chemicals may repel ants but do not kill them quickly.
- Future testing should avoid drowning and test longer exposure.