S1

Shared core card

Diet and body weight in dogs

Researchers want to compare three diets for maintaining healthy body weight in adult dogs. Twenty-four dogs are randomly allocated to one of the three diets, with eight dogs receiving each diet. Each dog is fed separately from its own bowl.

Each dog's body weight is measured at the beginning and end of the six-week experiment.

DISCUSS
Treatment | experimental unit | observations | true replicates

S2

Shared core card

Feed additive for growing pigs

Researchers want to determine whether a feed additive increases growth in pigs. Twenty-four pigs are housed in six pens, with four pigs in each pen.

Three pens are randomly allocated to a control diet and three pens to a diet containing the feed additive. All pigs within a pen eat from the same feeder. Every pig is weighed at the beginning and end of the experiment.

DISCUSS
Treatment | experimental unit | observations | true replicates

S3

Shared core card

Vitamin treatment in dairy cows

Twelve dairy cows are randomly allocated to receive either a vitamin injection or a placebo injection, with six cows in each treatment.

One week later, a blood sample is collected from every cow. Each blood sample is divided into three aliquots, and the concentration of a blood biomarker is measured separately in each aliquot.

DISCUSS
Treatment | experimental unit | observations | true replicates

S4

Shared core card

Recovery treatment for horses

Eighteen horses complete a standardised exercise test. Each horse is randomly allocated either to wear a new recovery blanket after exercise or to receive the usual recovery procedure.

Heart rate is recorded from every horse immediately after exercise and again after 10, 20 and 30 minutes.

DISCUSS
Treatment | experimental unit | observations | true replicates

S5

Shared core card

Water temperature and trout growth

Researchers investigate the effect of water temperature on juvenile trout. One hundred and twenty trout are housed in 12 tanks, with 10 fish in each tank.

Four tanks are randomly allocated to each of three water temperatures: 12°C, 16°C or 20°C. All fish are individually weighed after six weeks.

DISCUSS
Treatment | experimental unit | observations | true replicates

S6

Shared core card

Ventilation in broiler production

A researcher wants to compare two ventilation systems for broiler production. Two identical broiler houses are available, each containing 1,000 birds.

Ventilation system A is installed in one house and ventilation system B in the other. At the end of the production cycle, body weight and mortality are recorded for all birds.

DISCUSS
Treatment | experimental unit | observations | true replicates

A1

Group 1 card

Milk replacer for dairy calves

Twenty dairy calves are randomly allocated to one of two milk replacers, with 10 calves receiving each product. Each calf is housed individually and receives its milk from its own bucket.

Body weight is recorded weekly for eight weeks, and a faecal sample is collected from each calf every two weeks.

DISCUSS
Treatment | experimental unit | observations | true replicates

A2

Group 1 card

Feeding enrichment for meerkats

A zoo wants to test whether puzzle feeders increase exploratory behaviour in captive meerkats. Eight meerkat enclosures are included in the study, each containing a social group of meerkats.

Four enclosures are randomly allocated to receive puzzle feeders and four continue to receive food in their normal way. Researchers record the behaviour of every identifiable meerkat in each enclosure.

DISCUSS
Treatment | experimental unit | observations | true replicates

A3

Group 1 card

Pasture type and sheep growth

Forty-eight sheep are allocated to eight fenced paddocks, with six sheep grazing in each paddock.

Four paddocks are randomly allocated to a ryegrass pasture and four to a mixed grass-and-clover pasture. The body weight of every sheep is measured at the start and end of the grazing period.

DISCUSS
Treatment | experimental unit | observations | true replicates

B1

Group 2 card

Dietary supplement during pregnancy in pigs

Sixteen pregnant sows are randomly allocated either to receive a dietary supplement or to receive the standard diet throughout pregnancy, with eight sows in each treatment.

After farrowing, the birth weight and survival of every piglet produced by each sow are recorded.

DISCUSS
Treatment | experimental unit | observations | true replicates

B2

Group 2 card

Skin treatment in dogs

Twelve dogs with a mild skin condition each have two similar affected areas identified, one on each side of the body.

For every dog, one area is randomly selected to receive cream A and the other receives cream B. After seven days, the severity of the skin condition is scored separately for the two areas.

DISCUSS
Treatment | experimental unit | observations | true replicates

B3

Group 2 card

Vaccination reminders in veterinary clinics

Researchers want to determine whether an electronic reminder system increases uptake of annual dog vaccinations.

Ten veterinary clinics are randomly allocated either to use the new reminder system or to continue with their usual procedure, with five clinics in each group. Vaccination attendance is recorded for 50 eligible dogs at each clinic.

DISCUSS
Treatment | experimental unit | observations | true replicates

C1

Group 3 card

Lighting and egg production

Sixty laying hens are housed in 12 cages, with five hens in each cage.

Six cages are randomly allocated to blue-enriched lighting and six to standard white lighting. Egg production is recorded separately for every hen over a four-week period.

DISCUSS
Treatment | experimental unit | observations | true replicates

C2

Group 3 card

Training methods for puppies

Eight puppy-training classes are recruited for a study comparing two training methods. Each class contains six puppies and their owners.

Four entire classes are randomly allocated to use clicker training and four classes to use verbal rewards. At the end of the course, every puppy completes the same behavioural assessment.

DISCUSS
Treatment | experimental unit | observations | true replicates

C3

Group 3 card

Diets for shelter cats

A researcher reports an experiment involving 24 cats living in several group rooms in an animal shelter. Twelve cats receive diet A and twelve receive diet B.

The cats normally share food bowls within their rooms. The report does not explain how cats were allocated to diets, whether different rooms received different diets, or how feeding of the two diets was organised.

Body weight is measured for all 24 cats.

DISCUSS
Treatment | experimental unit | observations | true replicates

D1

Group 4 card

Cooling fans for dairy goats

Thirty-two dairy goats are housed in eight pens, with four goats per pen.

Four pens are randomly selected to receive additional cooling fans during hot weather, while four pens have the normal ventilation system. Respiration rate and milk yield are measured for every goat.

DISCUSS
Treatment | experimental unit | observations | true replicates

D2

Group 4 card

Supplementary feeding of honey-bee colonies

Twenty honey-bee colonies are selected from an apiary. Ten colonies are randomly allocated to receive a supplementary feed during early spring and ten receive the normal management procedure.

At the end of spring, researchers measure honey production, colony size and the number of brood cells in every colony.

DISCUSS
Treatment | experimental unit | observations | true replicates

D3

Group 4 card

Enrichment for zoo elephants

A zoo houses six elephants together in a single enclosure. Researchers observe the elephants for four weeks under their normal management conditions.

A new environmental enrichment system is then installed in the enclosure, and the behaviour of all six elephants is observed for another four weeks. The researchers compare the behavioural observations before and after the enrichment was introduced.

DISCUSS
Treatment | experimental unit | observations | true replicates