1. Fundamental lab research on mutations in the SARS-CoV-2 virus

To better understand mechanisms and impact of mutations in the SARS-CoV-2 virus spike protein that will help in developing new effective vaccines in the future.

Situation:	*Lab*
Organism:	*Virus*
Application:	*Medical*

scenario card

2. Modification of bacteria for degradation of PET in the environment

To help solving world-wide pollution of oceans with macro and micro plastics.

Situation:	*Test field*
Organism:	*Bacteria*
Application:	*Environment*

scenario card

3. Modification of a non-conventional yeast using CRISPR-Cas9

For more cost efficient and sustainable production of fine chemicals, oils and recombinant proteins.

Situation:	*Lab*
Organism:	*Fungus*
Application:	*Industrial*

scenario card

4. Testing modified tobacco plants with improved photosynthesis in the field

To study the effects of photosynthesis modifications to increase yields in a model plant.

Situation:	*Test field*
Organism:	*Plant*
Application:	*Food/product*

scenario card

5. Inoculate honeybees against deadly mites and viruses

Use genetically engineered bacteria to protect honeybees from a deadly trend known as colony collapse due to varroa mites and deformed wing virus.

Situation:	*Test field*
Organism:	*Bacteria*
Application:	*Animals*

scenario card

6. Gene editing of chicken cells in the lab

To apply in chicken breeding and prevent outbreaks of bird flu in chicken farming. This will limit the chance of new human flu virus varieties developing.

Situation:	*Lab*
Organism:	*Animal*
Application:	*Food/product*

scenario card

Cards for Biosafety

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scenario card

7. Gene drives in rats, possums and weasels

To get rid of invasive mammals that pose a threat to native birds in New Zealand.

Situation: *Lab*
Organism: *Animals*
Application: *Animals*

scenario card

8. Genetically modified T cells for immunotherapy

Recognise a patient's cancer cells and fight the cancer when returned to the patient.

Situation: *Lab*
Organism: *Humans*
Application: *Medical*

scenario card

9. Engineering metabolism of plants for specific root exudates

To promote plant growth on acid soils that suffer from aluminium toxicity stress.

Situation: *Test field*
Organism: *Plant*
Application: *Improve resistance*

scenario card

10. Engineering soil bacterium to become a microbial cell factory

Engineer the Pseudomanus putida bacterium to produce isoprenoids (such as lycopene) which can be used in pharmaceuticals, cosmetics, nutrition, colourants and biofuel.

Situation: *Lab*
Organism: *Bacteria*
Application: *Food/product*

scenario card

11. Create chimeric viruses by combining noroviruses from various animals

To study disease course, multiplication and host specificity of norovirus. Combinations of the virus comes from humans, mice and pigs, among other things.

Situation: *Lab*
Organism: *Virus*
Application: *Disease course study*

scenario card

12. Develop a vaccine by genetic modification

Modify the African Swine Fever Virus in High Containmeit in Lelystad. ASFV can cause a highly contagious and serious disease in pigs and is therefore classified in pathogenicity class 4.

Situation: *Lab*
Organism: *Virus*
Application: *Animals*

scenario card

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scenario card

13. SARS-CoV-2 research team is strengthened with new employees due to pandemic

A new employee from outside the EU makes long days and continues work in the weekends. Neither direct colleagues nor supervisor are aware of how often this person works alone.

Situation:	*Lab*
Organism:	*Virus*
Application:	*Medical*

scenario card

14. Non-pathogenic strain has developed pathogenic properties

When discussing the results of an experiment, a non-pathogenic bacterial stain has developed pathogenic properties. This gives new insights into genetic factors.

Situation:	*Lab*
Organism:	*Bacteria*
Application:	*Medical*

scenario card

15. Confidential report is taken home on a USB

An employee decides to work from home on a confidential report. The sensitive information is home with them on an USB drive.

Situation:	*Home*
Organism:	*Humans*
Application:	*Confidentiality*

scenario card

16. Police officer enters high-risk lab unprotected

A forced lock to a high containment laboratory is investigated. It looks like a burglary. The police investigating the scene enters the lab unprotected.

Situation:	*Lab*
Application:	*Security and safety*

scenario card

17. Fire department starts extinguishing fire without lab supervision

The fire department is dispatched in the middle of the night after the fire alarm went off. They start fire extinguishing procedures immediately.

Situation:	*Lab*
Application:	*Safety procedures*

scenario card

18. Sensitive communication of high risk experiment results via email

During international collaboration, techniques and results are communicated via email. These technique and results include high-risk laboratory experiments at BSL-3 level.

Situation:	*Lab*
Organism:	*Various*
Application:	*Collaboration*

scenario card

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