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# Sticky Note Exercise

## Exercise Instructions

### Training Goal

The sticky note exercise uses independent and team-based learning approaches to train scientists to recognize, analyze, and address different types of biorisks.

### Lead Developing Organization

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### Goal

The sticky note exercise uses independent and team-based learning approaches to train scientists to recognize, analyze, and address different types of biorisks.

### Outcome

At the end of this exercise, students should be able to identify laboratory biosafety and biosecurity risks, including the malicious application of scientific knowledge (published or unpublished), and strategies (or practices) to prevent or mitigate these biorisks. Students should understand which practices may be useful for addressing risks in different categories. In addition, the exercise should impart a common understanding of these risks and practices, which is critically important for implementing risk prevention and mitigation strategies at their institutions.

### Output

The sticky note exercise results in a categorization of risks and mitigation or prevention strategies to address those risks by their purpose(s) of: 1) preventing accidental exposure or release (Laboratory Biosafety); 2) preventing malicious application of scientific knowledge (Dual Use Risks); and 3) preventing deliberate theft, and malicious development and use (Laboratory Biosecurity). Figure 1 illustrates the expected outputs from this exercise.

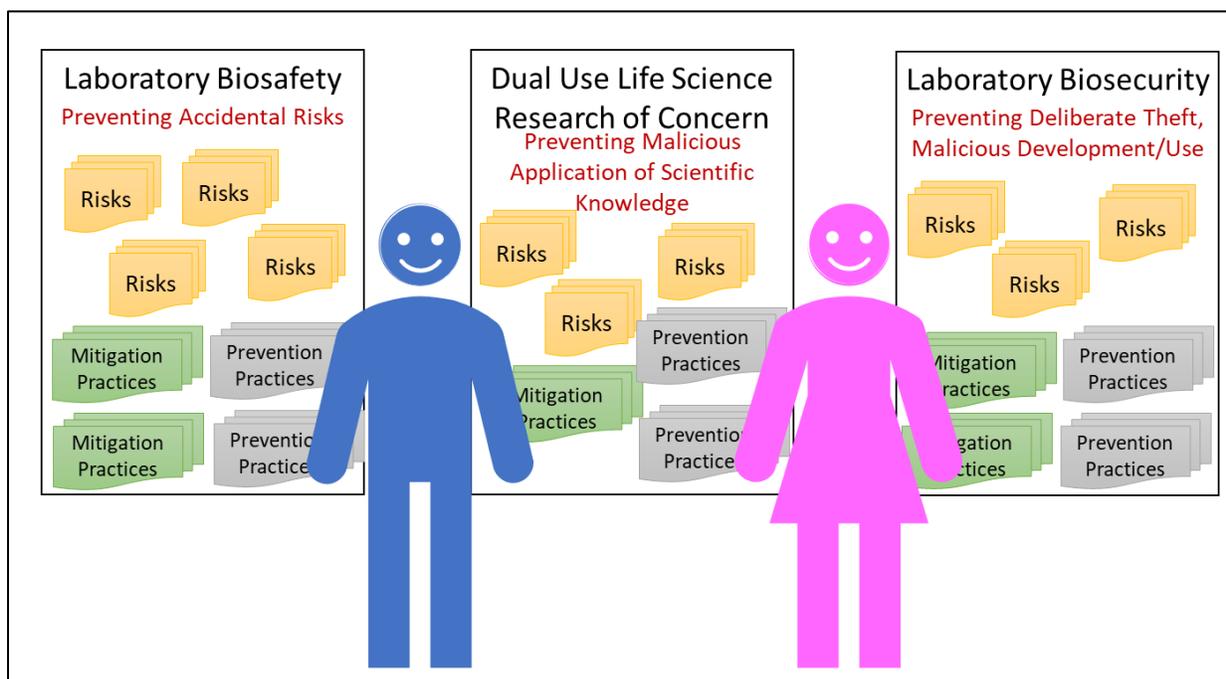


Figure 1. Illustration of the Sticky Note Exercise

### Materials

Large sheets of paper, white board, or wall space (on which category signs can be placed)  
Small sticky notes (e.g., Post-it Notes)

Dot stickers of different colors  
Pens

### Process

To facilitate the sticky note exercise, instructors will follow the steps below. This exercise works best with 15 or fewer individuals. The instructor should describe ground rules for participating in this interactive exercise. These rules include overcoming deference to hierarchy or status, and ensuring that discussions among trainees is constructive rather than combative or judgmental.

#### Planning and Preparation

**Step 1: The instructor defines the learning goals and objectives for this exercise.** The learning goals should be outcome-based and address a training need. The instructor should limit the number of learning goals to a maximum of 2 per exercise. The learning objectives should be specific actions that inform student expectations for the exercise. The instructor should limit the number of learning objectives to a maximum of four per learning goal.

**Step 2: The instructor identifies the scope (or parameters) of the exercise and the topics that students will be asked to identify and categorize.** The two topics that students will have to identify and categorize are: 1) biorisks; and 2) practices for preventing or mitigating these risks.

**Step 3: The instructor determines whether students should be given examples of each topic in the categories to facilitate the exercise.** In general, thinking about risks during the preparation phase provides the instructor with more opportunities to make the exercise relevant to trainee needs. Table 1 lists risks that are relevant to the current topic. The risks in the table will be written on sticky notes prior to the start of the exercise and placed on the wall next to the papers, white board, or wall under the category name. Instructors can modify the lists of risks in this table as necessary to meet the training needs of their scientists.

#### Teaching Tidbits

Trainers can use this format to identify baseline understanding of concepts, norms, risks, practices, and other relevant information.

Trainers can pre-determine categories or allow students to generate their own categories based on the content.

Please send other ways of tailoring the exercise to [mena@gryphonscientific.com](mailto:mena@gryphonscientific.com).

**Table 1. Prepared Risk Statements for Sticky Note Exercise**

Transfer of security plans to unauthorized individuals	Research on respiratory virus in biosafety level 2 laboratory
Isolation of bacterial species from infected livestock	Development of antiviral resistant influenza virus
Removal of pathogen from freezer without a need or documentation	Copying of inventory information stored on the computer
Modification of pathogenic bacteria to increase environmental stability	Modification of crop using CRISPR/Cas9 resulting in increased susceptibility to plant pathogens
Request to test for ricin in forensic samples	Modeling pathogenicity of virus using bioinformatics analyses

**Step 4: The instructor prepares the large pieces of paper, white boards, or signs for the wall with the scope categories.** Figure 1 illustrates this concept. These papers, boards, or signs will be placed on the walls of the training venue to allow students to add and move the sticky notes.

#### Exercise

The duration of this exercise, as outlined below, is approximately 1.5 - 2 hours long.

**Step 5: The instructor should explain the objective and expectations of the exercise to students.** The instructor should describe the learning goals of the sticky note exercise and expectations of students. The instructor should stress the importance of welcoming different viewpoints during the discussion, promoting a supportive environment for students to share ideas openly and without hesitation.

**Step 6: The instructor spends 10 minutes describing and defining the categories to students.** This step ensures that students understand the definitions and scope of each category included in the exercise. Instructors can reinforce these process by asking students to describe their understanding of the category definitions.

**Step 7: The instructor asks students to spend 10 minutes thinking about items associated with the first topic (biorisks).** Students should write whatever risks come to mind - whether they are operational, organizational, experimental, or computer-based risks – on the sticky notes. They should be instructed to write only one item per sticky note.

**Step 8: After completion of Step 7, the students place the sticky notes onto the best matched category, group similar items together under their appropriate categories, and prioritize the items.** The instructor should have the students add place their sticky notes under the appropriate scope categories. They should be instructed to discuss the risks and their placements with other students, grouping similar items together. Groups can consist of 1 or more sticky notes. Some groups may be viewed as common or high-consequence risks, for which they assign a higher priority than others. To visualize this relative prioritization, students should use colored dots (provided by the instructor) to highlight highest priority items. The instructor should inform students about the color code system (e.g., red dots – highest priority; yellow dots – second highest priority; blue-dots third highest priority). Alternatively, the instructor can give each person a defined number of dot stickers to place on the highest priority items. This process requires students to think more critically about the risks, their similarity or differences to each other, and others' views and rationales for grouping and prioritizing risks. If needed, the instructor should ask questions to guide participant thought about grouping and prioritization.

The amount of time required for this step depends on the number of students. For example, if the number of students is equal to or less than 15, the instructor may choose to allot only 10 minutes. If the group is greater than 15, the instructor may choose to spend 20 minutes. However, greater lengths of time disrupt the training session and are not advised.

**Step 9: After completion of Step 8, the instructor engages all students in discussion about the items, their groupings and prioritization, and categorization.** During this step, students may

suggest modifying the grouping or prioritization. The instructor should ask questions to encourage agreement about the items lists and priorities for each category.

**If only one topic is chosen, Step 9 is the end of the exercise and the output is the lists of risks associated with each category.**

*Step 10: The instructor engages all students in discussion about the items, their relative prioritization, and other information identified for each category.* The instructor should discuss the outcomes of the exercise. If the exercise involves more than one topic, the instructor should engage students in discussion about the relationships between the items for the first and second topics. Instructors should note when practices provide benefit across categories and highlighting when practices are specific to a single category or risk.

**The output from Step 10 is a list of items based on their scope categories and their relative priority levels. If more than one topic is chosen, the relationships between items in each topical area are included in this list.**

### **Working with Large Groups**

For trainings that involve more than 15 students, these steps should be modified to achieve the intended goals. Specifically, students should be divided into groups of 10-15, each of which will conduct the following steps with an instructor (e.g., teaching assistants). After each group has had an opportunity to discuss their lists, a representative from each of the smaller groups should share their lists with the whole group, after which the instructor should engage the entire group in discussion to arrive at one list of risks and practices and the primary output.