

Training Activity Toolkit for training Food Science Professionals:

1. Title of the learning activity: **Jeopardy**

General description of the learning activity:

Jeopardy is a **learner-centered** training activity used for the summative evaluation of learning at the end of the training session. It is a timed activity with increasing levels of difficulty that will be scored. It assists the learners by linking the new knowledge and skills with the existing schemas, leading to long-term memory of the learned material (Stolovitch & Keeps, 2011).

How would the learning activity be used in my organization?

It will be used during the new-hire training for Food science professionals such as Food Technicians, Food Engineers, QA Technicians, and QA Managers, to train them with various concepts of **Food Microbiology** and **Food Safety**.

Specific description of the learning activity:

The class will be divided into four teams of 3-4 members each. The facilitator provides the answers/solutions for the key points taught during the training session using a PowerPoint presentation. Each team will be directed to discuss with the team members and frame an accurate question for which the key point will be the answer. They will have three minutes to frame the question. Each team will get five points for an accurate question. If a team fails to frame a question within three minutes, the other team that frames an accurate question will get two bonus points.

Workplace Example of the activity:

The newly hired Food Science professionals such as Food Technicians, Food Engineers, QA Technicians, and QA Managers, must complete a mandatory company sponsored training program for a two days on various concepts of **Food Microbiology** and **Food Safety**. The trainees have obtained the knowledge and comprehension of the various Food borne diseases during training for the past two days. The facilitator plans to evaluate their learning regarding the various Food borne diseases, by actively involving the trainees during evaluation. The facilitator divides the trainees into four teams of 3-4 members each. The facilitator provides the answers/solutions for the key points taught during the training session using a PowerPoint presentation such as “**The bacteria causes diseases like respiratory infection, nosocomial infection, Endophthalmitis, and Gas gangrene**” (Montville, Matthews, & Kniel, 2012). Each team will discuss with the team members and frame an accurate question for which the key point will be the answer such as “**What are the diseases caused by *Bacillus cereus*?**” (Montville, Matthews, & Kniel, 2012). They will have three minutes to frame the question. Each team will get five points for an accurate question. If a team fails to frame a question, the other team that frames an accurate question will get two bonus points.

2. Title of the learning activity: **Lecture Team Quiz**

General Description of the learning activity:

Lecture Team Quiz is a **learner-centered** training activity that involves the active participation of both facilitator and the trainees during the learning process (Stolovitch & Keeps, 2011).

How would the learning activity be used in my organization?

It will be used during the new-hire orientation on **Fire Safety** for all Food science professionals such as Food Technicians, HACCP Coordinators, QA Technicians, Food Engineers, and QA Managers, to train them with various concepts of **Fire Safety**.

Specific description of the learning activity:

The class will be divided into three teams of 3-4 members each. The facilitator announces that s/he will lecture for ten minutes on the various sub-topics of **Fire Safety**. Then, each team must frame one question based on the content of the lecture. They must also be prepared to answer a question on the same content. The teams will be provided with five minutes to frame a question and prepare potential responses. Team One poses its question to Team Two. Members of Team Two who feel that they are ready to respond raise their hand. The leader of Team One chooses a respondent. If the response is accurate, Team Two gets five points. If not, Team Three members can respond to the question posed by Team One. If it is accurate, they get two points. If inaccurate, no points are awarded. Team Two then poses their question to Team One. When the first round is completed, the facilitator continues with the lecture and the teams quiz for two more rounds. The teams total up their scores to determine how well they have been able to retain the information provided during the lecture.

Workplace Example of the activity:

All Food Science professionals must obtain the **Fire Safety training** prior to begin working at Food Processing companies. The facilitator plans to involve the trainees to actively participate during the learning process. The facilitator divides the class into three teams of 3-4 members each. The facilitator announces that s/he will lecture for ten minutes on various sub-topics of Fire Safety such as “**The accurate method of using a fire extinguisher**”. Then, each team frames one question based on the content of the lecture such as “**How could a fire be extinguished completely by following the four main steps of using a fire extinguisher in the correct sequence?**” They also prepare to answer a question on the same content such as “**The four main steps of using a fire extinguisher can be memorized using the mnemonic PASS**”. The teams will have five minutes to frame a question and prepare potential responses. Team One poses its question to Team Two. Members of Team Two who feel that they are ready to respond raise their hand. The leader of Team One chooses a respondent. If the response is accurate, Team Two gets five points. If not, Team Three members can respond to the question posed by Team One. If it is accurate, they get two points. If inaccurate, no points are awarded. Team Two then poses their question to Team One. When the first round is completed, the facilitator continues with the lecture and the teams quiz for two more rounds. The teams total up their scores to determine how well they have been able to retain the information provided during the lecture.

3. Title of the learning activity: **Listening Teams**

General Description of the learning activity:

Listening teams is a **learner centered** training activity that involves the active participation of both facilitator and the trainees during the learning process (Stolovitch & Keeps, 2011).

How would the learning activity be used in my organization?

It will be used during the **Prerequisites to HACCP Certification** training for Food science professionals such as Food Technicians, HACCP Coordinators, QA Technicians, and QA Managers, to train them with various concepts of the **Prerequisites to HACCP Certification** training.

Specific description of the learning activity:

The class is divided into four teams of 3-4 members each. Each team will be responsible for listening and recording the main points related to a specific sub-topic. The facilitator presents relevant information related to each sub-topic. Then, the facilitator instructs each of the four teams to summarize the key points for each sub-topic in an appropriate sequence. Each team will have five minutes to present their key points to the whole class. Finally, the facilitator summarizes any key points that the teams may have missed.

Workplace Example of the activity:

Food Science professionals must obtain the HACCP Certification training to work with the HACCP team at Food Processing companies. The **Prerequisites to HACCP Certification** training must be obtained prior to the HACCP Certification training. The facilitator plans to actively involve the trainees during the learning process. The facilitator divides the class into four teams of 3-4 members each. The facilitator directs each team to be responsible for listening and recording the main points related to the four sub-topics of the Prerequisites to HACCP Certification training such as “**History of Prerequisites to HACCP, Overview of Prerequisite Programs, Programs that are considered as prerequisites, and Establishing Prerequisite Programs**” (Montville, Matthews, & Kniel, 2012, p. 5-9). The facilitator then presents relevant information related to each sub-topic. Then, the facilitator instructs each of the four teams to summarize the key points for each sub-topic in an appropriate sequence. Each team will have five minutes to present their key points to the whole class. Finally, the facilitator summarizes any key points that the teams may have missed.

4. Title of the learning activity: **Police Interrogation**

General Description of the learning activity:

Police Interrogation is a **learner-centered** training activity. It involves active participation of the trainees to elicit content from the facilitator by posing probing questions and summarize the learned material to prepare for the quiz (Stolovitch & Keeps, 2011).

How would the learning activity be used in my organization?

It will be used during the **HACCP Certification** training for Food science professionals such as Food Technicians, HACCP Coordinators, QA Technicians, and QA Managers, to train them with various concepts of the **HACCP Certification** program.

Specific description of the learning activity:

The class is informed that the entire topic of **HACCP** needs to be mastered to prepare for a quiz in an hour. The trainees must prepare for the quiz by posing questions and probe to force/extract content out of the facilitator. The facilitator mentions that s/he will only be answering specific questions posed by the trainees. The interrogation session is open to individuals to create and pose questions. The trainees will be able to summarize the learned material prior to the quiz.

Workplace Example of the activity:

Food Science professionals must obtain the **HACCP Certification** training to work with the HACCP team at Food Processing companies. The trainees have obtained the knowledge and comprehension of the HACCP training program during the day. The facilitator plans to assess the knowledge and comprehension gained by the trainees in an hour. The facilitator directs the trainees to prepare for the quiz by posing questions such as “**Define the term HAACP and Explain the seven principles on which the HAACP system is based**” (Montville, Matthews, & Kniel, 2012, p. 474-483) and probe, to force/extract content out of the facilitator. The facilitator mentions that s/he will only be answering specific questions posed by the trainees. The interrogation session is open to individuals to create and pose questions. The trainees will be able to summarize the learned material prior to the quiz.

5. Title of the learning activity: **Jigsaw**

General Description of the learning activity:

Jigsaw is a **learner-centered** training activity to help the trainees prepare the presentations, teach the content, and evaluate their own learning at the end of the class by taking a quiz, with debriefing from the facilitator. It involves both formative and summative evaluation (Stolovitch & Keeps, 2011).

How would the learning activity be used in my organization?

It will be used during the **HACCP Certification** training for Food science professionals such as Food Technicians, HACCP Coordinators, QA Technicians, and QA Managers, to train them with various concepts of the **HACCP Certification** program.

Specific description of the learning activity:

The class will be divided into teams of 3-4 members each, and the teams choose a team leader. The team leader provides the team with prepared materials related to each sub-topic to be learned during the training. The teams must prepare 20-minute presentations to be given to the entire class. They have 90 minutes to prepare their individual parts for each sub-topic. The trainees are cautioned that they will be tested on their presentations at the end. Each team collaborates with the team members to discuss the style of presentation and uses learning materials such as instructor notes, articles, and overhead transparencies to make the content of their sub-topic interesting to the class. Finally, the team leaders combine the brief presentations into a complete lecture and present it to the whole class. The facilitator evaluates the trainees with a brief quiz at the end of the presentation and debriefs the entire topic of the day to the class.

Workplace Example of the activity:

Food Science professionals must obtain the **HACCP Certification** training to work with the HACCP team at Food Processing companies. The facilitator plans to involve the trainees to actively participate during the learning process. The facilitator divides the class into three teams of 3-4 members each and directs the teams to choose a team leader. The team leader provides the team with prepared materials related to each sub-topic of “**Controlling the three types of Hazards in Food processing**” (Montville, Matthews, & Kniel, 2012) to be learned during the training. The facilitator directs the teams to prepare 20-minute presentations to be given to the entire class. They will have 90 minutes to prepare their individual presentation for the sub-topics such as “**Biological Hazards and Controls, Chemical Hazards and Controls, and Physical Hazards and Controls**” (Montville, Matthews, & Kniel, 2012). The facilitator cautions the trainees that they will be tested on their presentations at the end. Each team collaborates with the team members to discuss the style of presentation and uses learning materials such as instructor notes, articles, and overhead transparencies to make the content of their sub-topic interesting to the class. Finally, the team leaders combine the brief presentations into a complete lecture and present it to the whole class. The facilitator evaluates the trainees with a brief quiz at the end of the presentation and debriefs the entire topic of the day to the class.

6. Title of the learning activity: **Quiz Game**

General Description of the learning activity:

Quiz Game is a **learner-centered** training activity used to review the instruction provided during the day, with active participation of the trainees (Stolovitch & Keeps, 2011).

How would the learning activity be used in my organization?

It will be used during the refresher-training course for Food science professionals such as Food Technicians, Food Engineers, QA Technicians, and QA Managers, to train them with various concepts of **Good Manufacturing Practices**, as related to **Food Processing**.

Specific description of the learning activity:

The facilitator provides instruction on a specific topic for the day. S/he then hands out a piece of paper to the trainees. They are directed to review their course materials and notes provided during instruction. Each trainee must identify a single key point that is important and worthy of retaining. It will be the “answer”. Then each trainee privately creates a query to elicit his/her answer and writes it on the piece of paper provided, without his/her name on it. The facilitator collects all the questions, shuffles the stack, and passes them out. The trainees read the queries on the piece of paper they receive and provide their answer, when they are asked to do so. The facilitator will then discuss and comment on them. If an answer is incomplete/incorrect, the facilitator obtains the missing information from the group. The trainees that miss a chance to answer will get a chance to reply or add information to the incorrect/incomplete answers provided by others. The review activity will ultimately be debriefed, to summarize all the key points by the facilitator.

Workplace Example of the activity:

Food Science professionals must attend refresher training courses to keep themselves up-to-date with the recent developments in their field. The trainees have obtained the theoretical knowledge and comprehension of **Good Manufacturing Practices**, as related to **Food Processing** during the day. The facilitator plans to actively involve the trainees, while reviewing the instruction provided. The facilitator directs the trainees to review their course materials and notes provided during instruction. Then, each trainee identifies a single key point that is important and worthy of retaining such as “**Sanitation is the process of creation of a comprehensive program designed to control microorganisms in a food-processing plant**” (Montville, Matthews, & Kniel, 2012, p. 471). It will be the “answer”. The facilitator directs each trainee to privately create a query such as “**Define the term Sanitation**” (Montville, Matthews, & Kniel, 2012), to elicit his/her answer and write it on the piece of paper provided without his/her name on it. The facilitator collects all the questions, shuffles the stack, and passes them out. The trainees read the queries on the piece of paper they receive and provide their answer when they are asked to do so. The facilitator then discusses and comments on them. If an answer is incomplete/incorrect, the facilitator obtains the missing information from the group. The trainees that miss a chance to answer get a chance to reply or add information to the incorrect/incomplete answers provided by others. The facilitator ultimately debriefs the review activity to summarize all the key points.

7. Title of the learning activity: **Terminology Tussle**

General Description of the learning activity:

Terminology Tussle is a **learner-centered** training activity similar to “Bingo”. It is used to review the comprehension of new technical terminology by active participation of the trainees (Stolovitch & Keeps, 2011).

How would the learning activity be used in my organization?

It will be used during the refresher-training course for Food science professionals such as Food Technicians, Food Engineers, QA Technicians, and QA Managers, to train them with various concepts of **Food Microbiology**.

Specific description of the learning activity:

The facilitator presents technical information that contains new terminology. The facilitator then provides each trainee with a board that is similar to “Bingo”, with randomly dispersed technical terms. Each board will differ from the other. The facilitator draws definitions from a hat and reads them aloud. The trainees are directed to place a checkmark on the term that matches with the definition. The first trainee to cover five terms in a row wins the game. When there are many terms to review, the trainee who covers the whole board will be the winner.

Workplace Example of the activity:

Food Science professionals must attend refresher training courses to keep themselves up-to-date with the recent developments in their field. The trainees have obtained the theoretical knowledge and comprehension of various types of food borne diseases, along with the physical, chemical, and biological hazards that affect the quality of food during training. The facilitator plans to review the technical information that contains a lot of new terminology by active participation of the trainees during the review session. The facilitator provides each trainee with a board that is similar to “Bingo”, with randomly dispersed technical terms. Each board differs from the other. The facilitator draws definitions from a hat for terminologies such as “**Virulence, Pathogenicity, Epidemiology, Enterotoxins**, etc.” (Montville, Matthews, & Kniel, 2012) and reads them aloud. The trainees have to place a checkmark on the term that matches with the definition. The first trainee to cover five terms in a row wins the game. When there are many terms to review, the trainee who covers the whole board will be the winner.

8. Title of the learning activity: **Online Self-directed Learning Teams (SDLTs)-for webinars, e-learning, and m-learning.**

General Description of the learning activity:

Online Self-directed Learning Teams (SDLTs) is an online **learner-centered** sharing learning activity that is based on the concept of **Self-directed Learning**. The trainees will explore various techniques online, to enhance their learning by active participation, and sharing what they already know and learning what they need to know.

How would the learning activity be used in my organization?

It will be used during the refresher-training course for Food science professionals such as Food Technicians, Food Engineers, QA Technicians, and QA Managers, to train them with various concepts of **Food Safety**.

Specific description of the learning activity:

The facilitator will project a slide that briefly describes a technique in Food Safety. The trainees will have five minutes to discuss the technique online. The **commentators** are directed to type their comments related to the technique such as its importance, whether they have used it at work, key information regarding the technique, and how it can be modified to better suit their current needs. The **readers** are directed to read, process, and organize the comments made by the commentators. They will form a mental map of interesting comments. The facilitator will read the typed comments during the online discussion, along with keeping track of the time to give a 30-second warning and conclude the session. S/he will provide the rationale for the technique, along with reinforcing the accurate and useful comments made by the trainees, with rectifying the misleading comments. The teams will switch roles, while working on the next technique. The facilitator will provide a complete list of techniques discussed during the online session and encourage the trainees to continue with exploring them further.

Workplace Example of the activity:

Food Science professionals must attend refresher training courses to keep themselves up-to-date with the recent developments in their field. The trainees already have the theoretical knowledge and comprehension of various types of food borne diseases, along with the physical, chemical, and biological hazards that affect the quality of food. The facilitator plans to help the trainees with sharing what they already know and learning what they need to know, by actively participating in online **Self-Directed Learning Teams (SDLTs)**. The facilitator divides the class into two teams having the same number of participants. The facilitator projects a slide that briefly describes a technique of Food Safety such as “**Chlorination and Postharvest safety of fresh produce**” (Montville, Matthews, & Kniel, 2012) to the online class. The teams will have five minutes to discuss the technique online. The commentators type their comments related to the technique such as its importance, whether they have used it at work, key information regarding the technique, and how it can be modified to better suit their current needs and render fresh produce safe. The readers read, process, and organize the comments made by the commentators. They form a mental map of interesting comments. The facilitator reads the typed comments during the online discussion and keeps track of the time, to give a 30-second warning to conclude the session. S/he provides the rationale for the technique, along with reinforcing the accurate and useful comments made by the trainees, and rectifies the misleading comments. The teams switch their roles while working on the next technique. The facilitator provides a complete list of techniques discussed during the online session and encourages the trainees to continue with exploring them further.

9. Title of the learning activity: **Case Method**

General Description of the learning activity:

Case Method is a **learner-centered** interactive learning activity that involves active participation of the trainees in both instructor-led and virtual classrooms. The method couples analysis with action. The trainees will analyze a realistic/real-life case scenario from different perspectives to arrive at multiple responses. Case Method fosters collaboration, critical thinking, and reflective thinking among the trainees. The trainees discuss their analyses, assumptions, and recommendations to obtain in-depth comprehension of the technical content related to the case, by the interactive learning process of inquiry.

How would the learning activity be used in my organization?

It will be used during the refresher-training course for Food science professionals such as Food Technicians, Food Engineers, QA Technicians, and QA Managers, to train them with various concepts of **Food Microbiology**.

Specific description of the learning activity:

The class will be divided into four teams of 3-4 members each. The class will be introduced to a fictional or real-life case scenario related to a problem. The trainees in each team will be directed to collaborate with their team members to analyze, discuss, and apply related concepts and principles to arrive at solutions and resolve the problem scenario. Each team will have 15 minutes to work on the case and arrive at solutions. Then, one member from each team will present the solutions to resolve the problem scenario to the class online. Finally, the facilitator will debrief the solutions of all the teams and provide additional insights to ward off any misconceptions.

Workplace Example of the activity:

Food Science professionals must attend refresher training courses to keep themselves up-to-date with the recent developments in their field. The trainees already have the theoretical knowledge and comprehension of various types of food borne diseases, along with the physical, chemical, and biological hazards that affect the quality of food. The facilitator plans to enable the active participation of the trainees during the e-learning session in Food Microbiology. The facilitator divides the class into four teams of 3-4 members each. The facilitator presents a slide with the description of a case scenario related to a Food Borne Disease outbreak such as “**Food borne disease (diarrhea) outbreak in a summer camp**” (Gallego, Fortunato, Rossi, Korol, & Moretton, 2013). The facilitator directs each team to collaborate with their team members to analyze, discuss, and apply related concepts and principles to arrive at solutions and resolve the problem scenario. They will have 15 minutes to work on the case and arrive at solutions. Then, one member from each team will present the solutions of the team to the class online. Finally, the facilitator will debrief the solutions of all the teams and provide additional insights to ward off any misconceptions.

10. Title of the learning activity: **Troubleshooting Simulations**

General Description of the learning activity:

Troubleshooting Simulations is a **learner-centered** interactive learning activity used to teach technical and interdisciplinary concepts. The facilitator presents realistic simulators such as debugging faulty machinery. The trainees work in collaboration to provide relevant solutions based on the data provided by the facilitator. The learning process continues until the trainees are able to analyze the cause of the problem and fix it. The facilitator leads the online debriefing discussion and summarizes the activity.

How would the learning activity be used in my organization?

It will be used during the new-hire e-learning training for Food science professionals such as QA Technicians and Food Engineers, to train them with various concepts of **Food Engineering**.

Specific description of the learning activity:

The class will be divided into four teams of 3-4 members each. The facilitator will present a realistic simulator scenario such as a problem with the working of a machine often used for the daily routine activities in food processing companies, or “what-if” scenarios related to food safety and microbiological conditions. The facilitator will direct the trainees to work in collaboration with their teams and brainstorm to analyze the actual cause of the problem with the faulty machine using the data provided. The trainees are provided with 15 minutes to analyze and fix the problem/arrive at solutions online. Each team will present their solution to the class online. The facilitator then leads the online debriefing discussion and summarizes the activity.

Workplace Example of the activity:

The newly hired Food Science professionals such as QA Technicians and Food Engineers must complete a mandatory company sponsored e-learning training program in various technical concepts of **Food Engineering**.

The Food Science trainees have been trained regarding the technical concept of “**Operating the Snacks Food Extruder to obtain breakfast cereals**”. The facilitator now provides a realistic activity to help them apply their knowledge and comprehension to solve real-life problems. The facilitator divides the class into four teams of 3-4 members each and presents the class with a slide of a realistic simulator scenario such as “**How should the Snacks Food Extruder be set up accurately to obtain breakfast cereals of the same size and shape?**” The facilitator directs the trainees to work in collaboration with their teams to analyze how the Snacks Food Extruder should be set up accurately to obtain breakfast cereals of the same size and shape. The trainees have 15 minutes to analyze the scenario and arrive at solutions online. Each team will present their solution to the class online. The facilitator then debriefs the discussion and summarizes the activity.

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