

Designing Training Programs for a Biosafety Environment

Student Guide



Designing Training Programs for a Biosafety Environment



Designing Training Programs for a Biosafety Environment

Biosafety Training

- Demonstrate how to design a training program
- Identify different ways of teaching (pro's and con's)
- Evaluate training



Attending a Course

- And Getting Most Value Out of It



Slide 3

Designing Training Programs for a Biosafety Environment

Teaching a Course

- And make your students remember it!



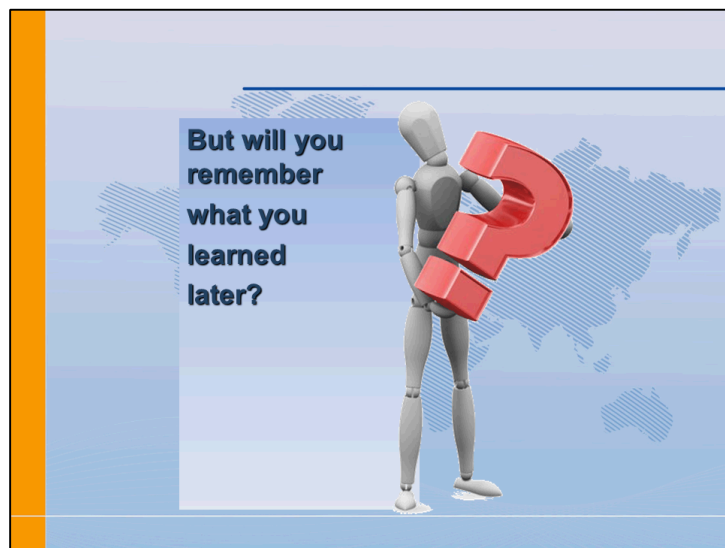
Slide 4

Here You are Again;

Another Relevant Course With Many Fellow Participants

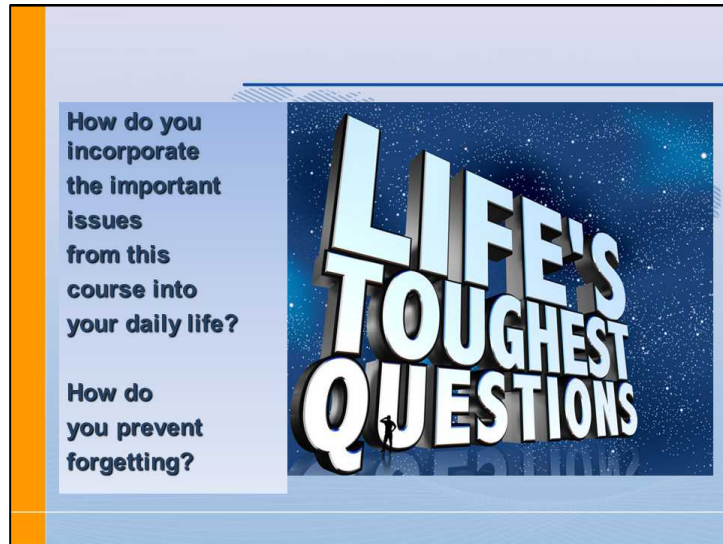


Designing Training Programs for a Biosafety Environment



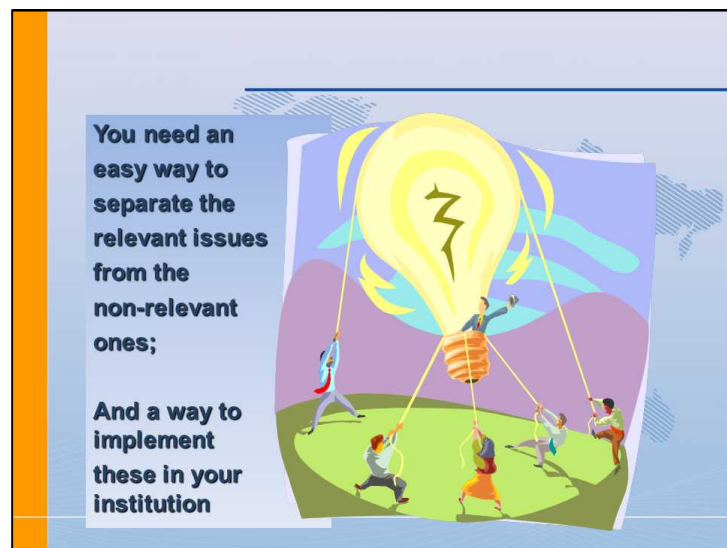
- Will you go home and read the slides and notes again?
- Will you report what you've learned to upper management?
- Will you convert suggested actions into actual actions?

Designing Training Programs for a Biosafety Environment



- How do we, as Biosafety Officers, make sure the safety measures and good habits we teach are implemented immediately and fully?

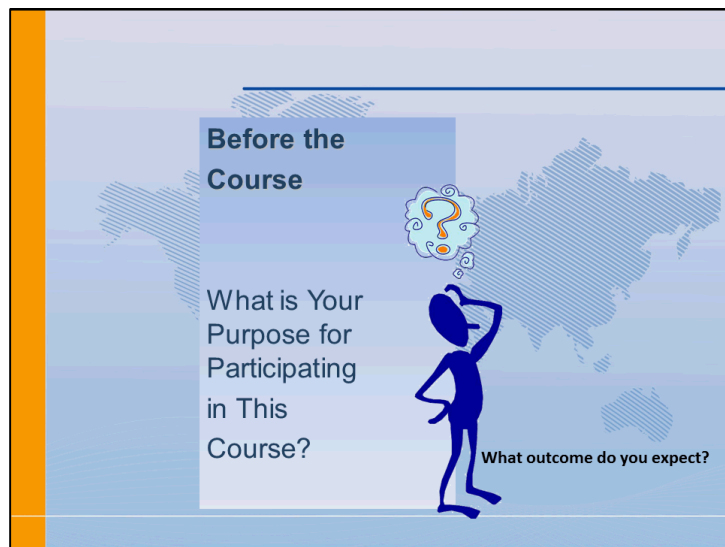
Designing Training Programs for a Biosafety Environment



Designing Training Programs for a Biosafety Environment



- Make an action plan!
 - A one page strategy, in visual form, of points to focus on when returning home

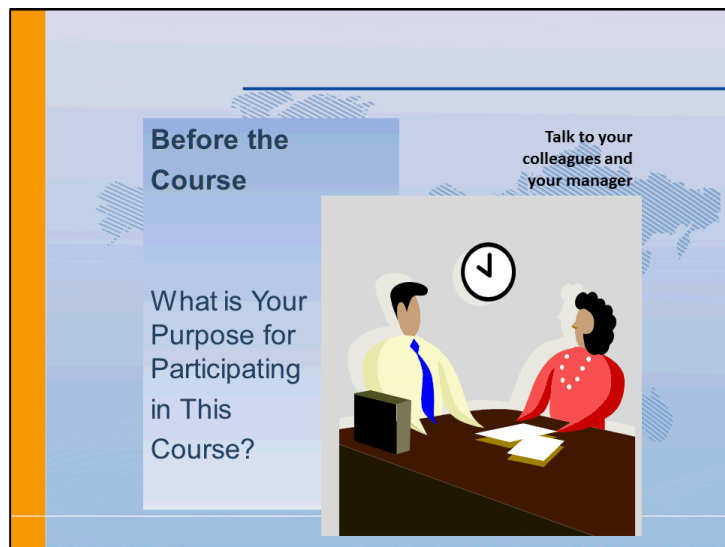


- What outcome do I expect?

- Why am I going?

- What am I going to take home?

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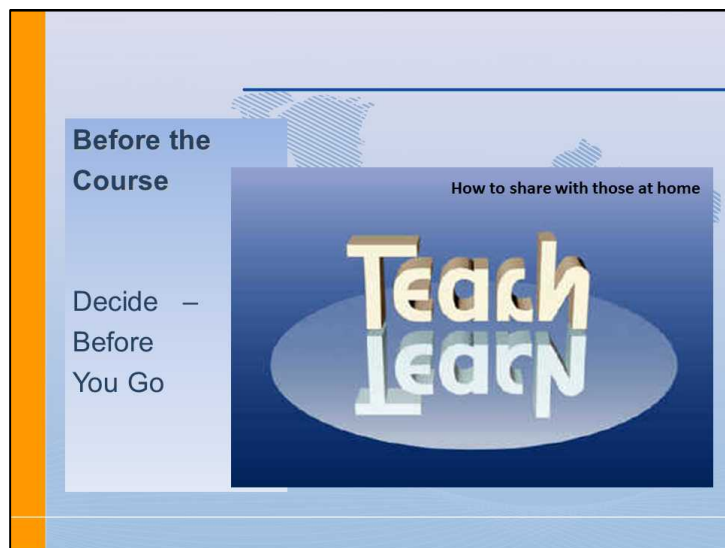
- What do my colleagues expect? My manager?



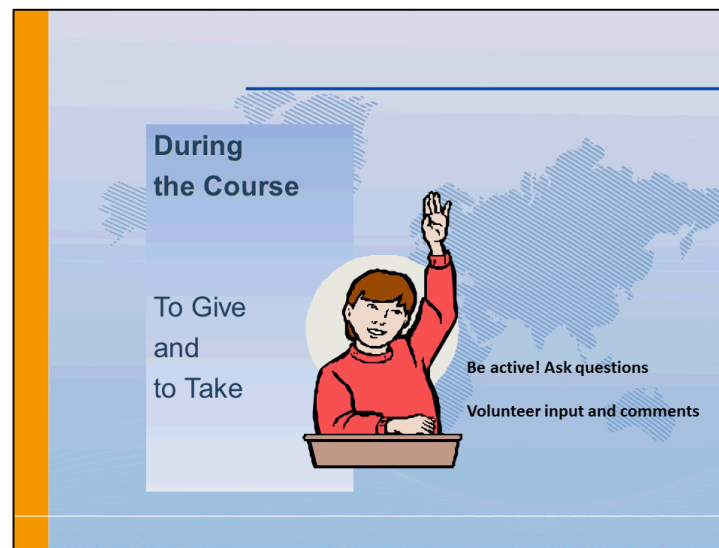
- Plan ahead!
 - Handle urgent tasks before departing

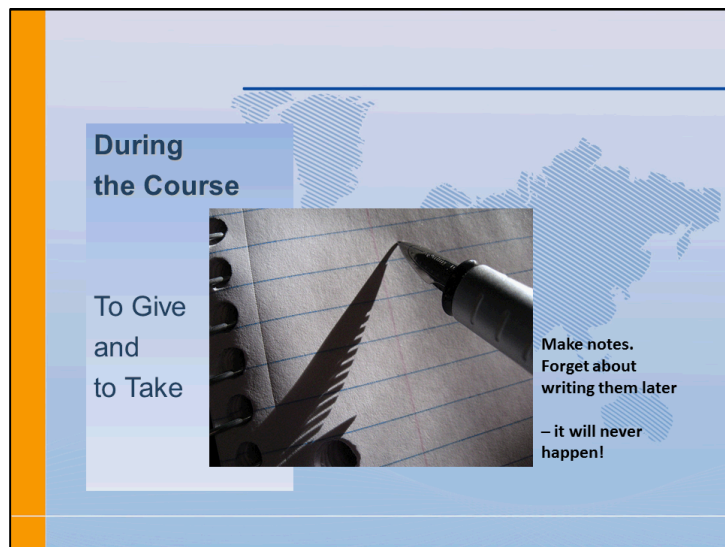
- Make sure to have a point-of-contact while you're away

- Let others know how and when to contact you



- How will I share the information when I return?





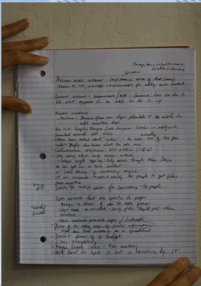
- Write it down!
 - Highlight areas that apply to your institution

Designing Training Programs for a Biosafety Environment

During the Course

During the Course

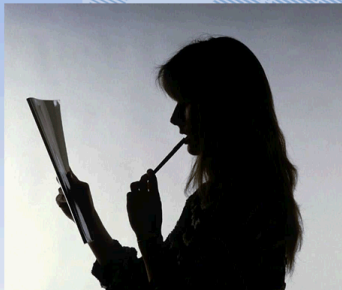
To Give and to Take



Your notes will help you organize your thoughts and focus your engagement

During the Course

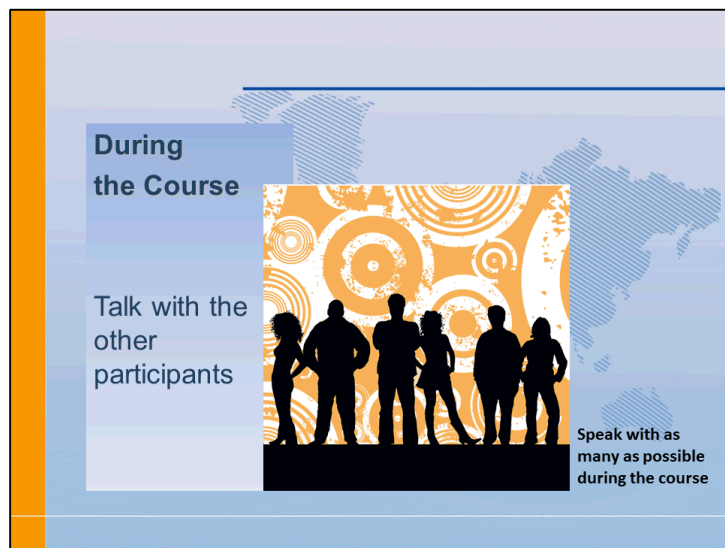
To Give and to Take



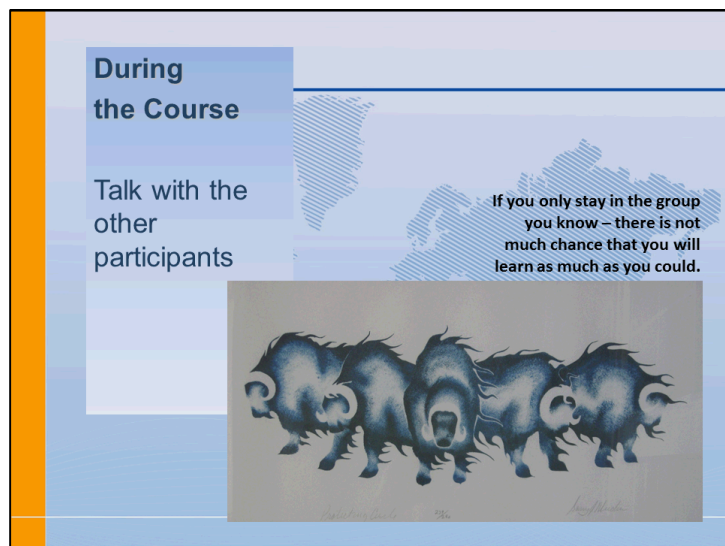
Make notes on what you *can and will* work with after the course has ended

Designing Training Programs for a Biosafety Environment

During the Course

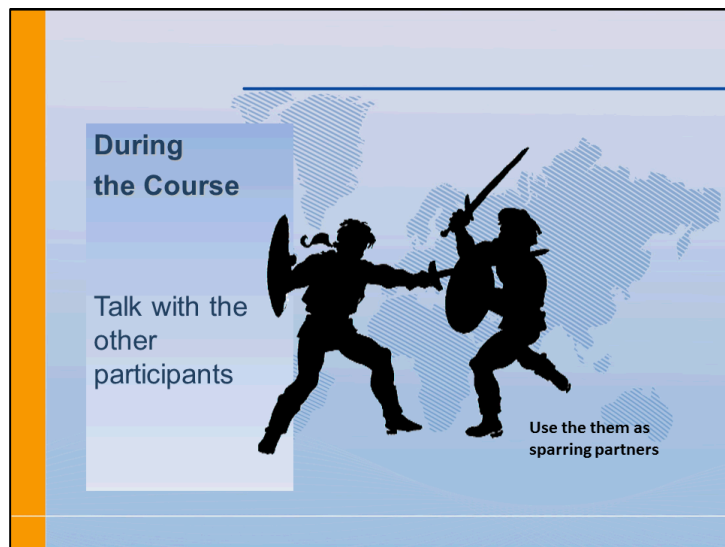


- Talk to fellow participants about their experiences
- Listen to new points of view



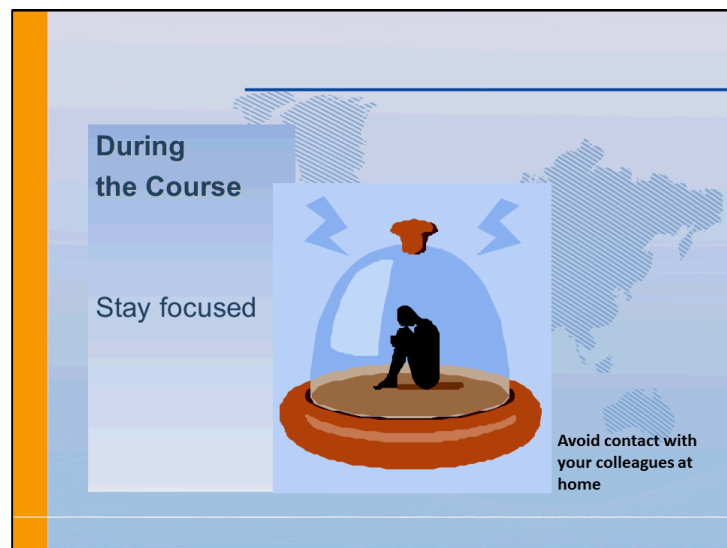
- Be open to meeting new people.

- Engage in conversation with participants outside your organization



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During the Course

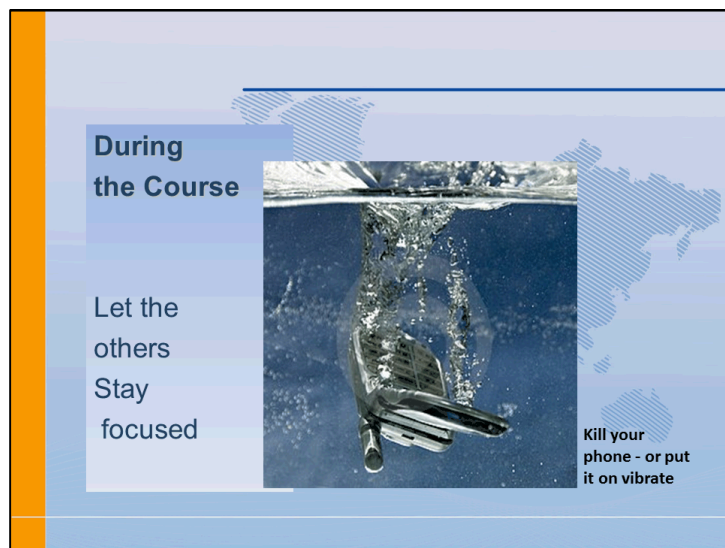


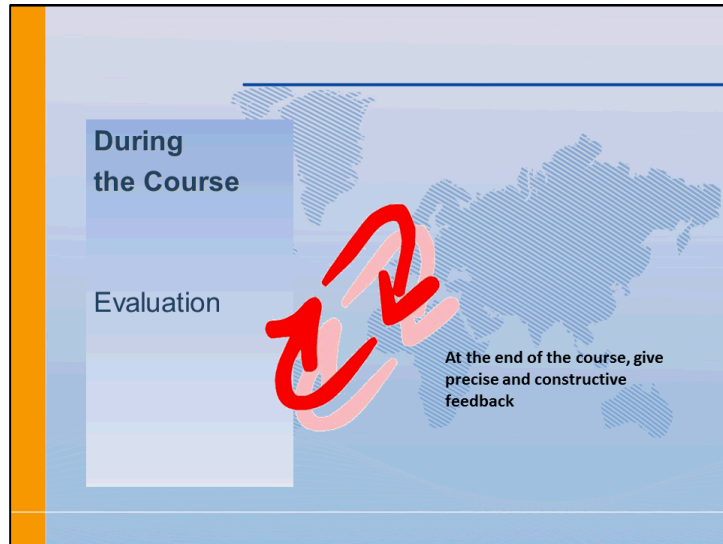
Focus on the course!

Avoid distractions from colleagues at home. If necessary set aside a specific time to respond to call and emails.

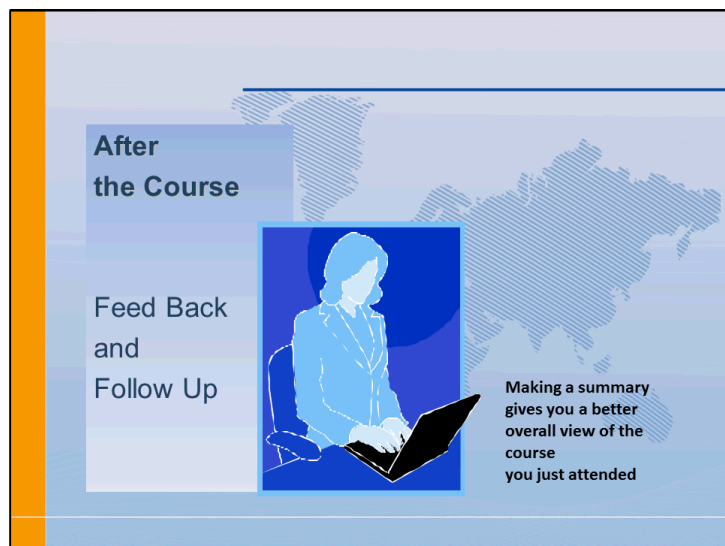
Designing Training Programs for a Biosafety Environment

During the Course





- You're feedback is important!
- Problems with the course or the instructor can only be addressed if they are voiced.



- Take the opportunity to summarize the information
 - Present it to colleagues
 - Write it down for future reflection

Designing Training Programs for a Biosafety Environment

After the Course

After the Course

Feed Back and Follow Up

Spice of Learning Theory

Case Context

Page 127

Maslow's Hierarchy of Needs

Self-actualization

Esteem

Social

Safety

Physiological

Page 128

Why do some leaders in Theory X and others in Theory Y?

Maslow's Theory X and Y

Theory X

- holds that people are naturally irresponsible, lazy, and avoid responsibility
- Described by Douglas McGregor
- What type of leader you are is determined by which theory you believe in.

Theory Y

- holds that people are naturally responsible, creative, and seek responsibility
- Described by Douglas McGregor
- What type of leader you are is determined by which theory you believe in.

Maslow's Hierarchy of Needs

Physiological

Safety

Social

Esteem

Self-actualization

Page 129

Maslow's Hierarchy of Needs

Physiological

Safety

Social

Esteem

Self-actualization

Page 130

Maslow's Hierarchy of Needs

Physiological

Safety

Social

Esteem

Self-actualization

After the Course

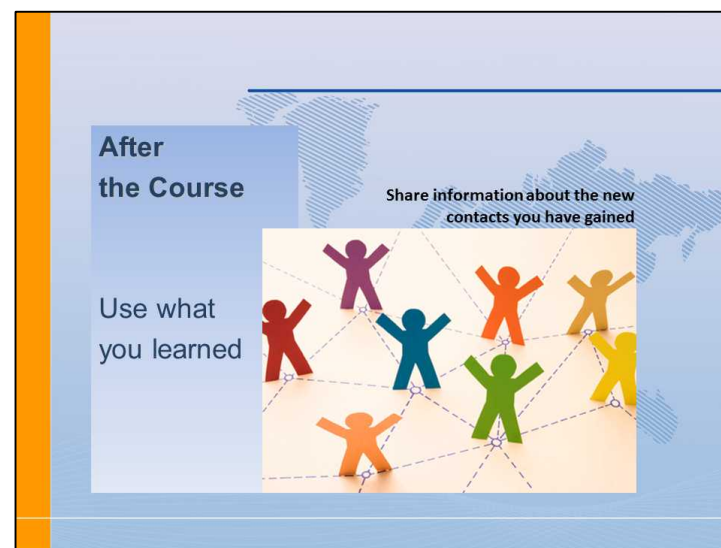
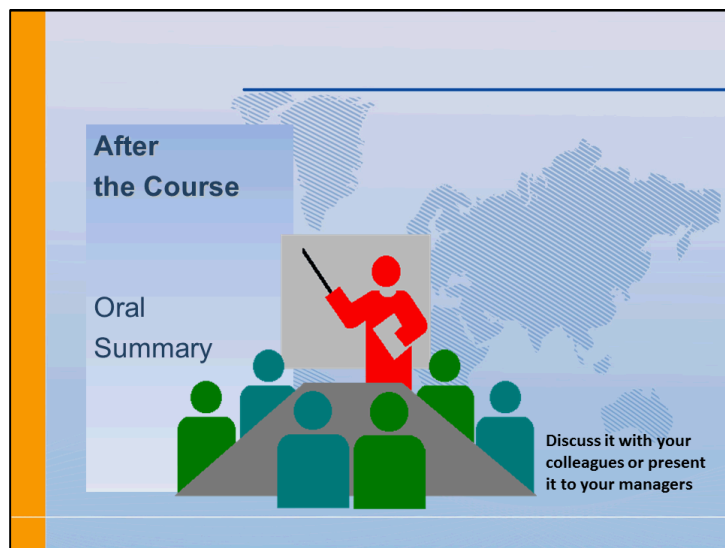
Written
summary

A calendar for June 2008. The top of the calendar features a photograph of a vibrant pink flower with green leaves. The date '20' is circled in red. The calendar grid shows the days of the month, with the 1st starting on a Friday and the 30th on a Sunday. The text 'June 2008' is printed at the top of the calendar area.

Set a deadline for
when to
present your notes

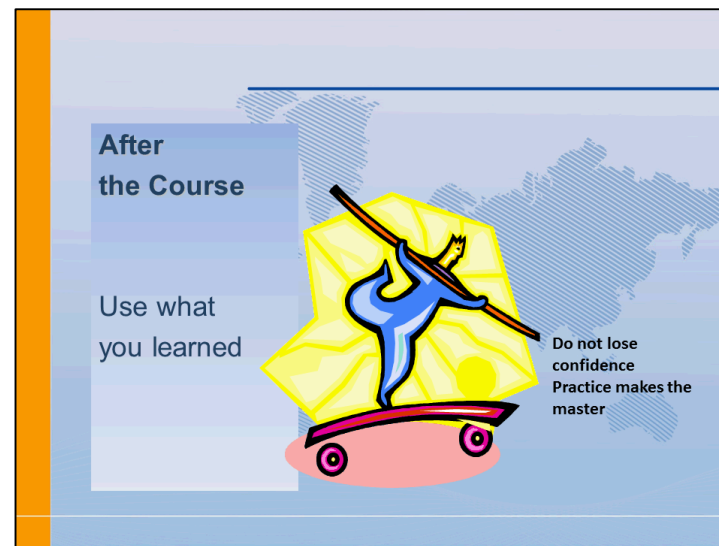
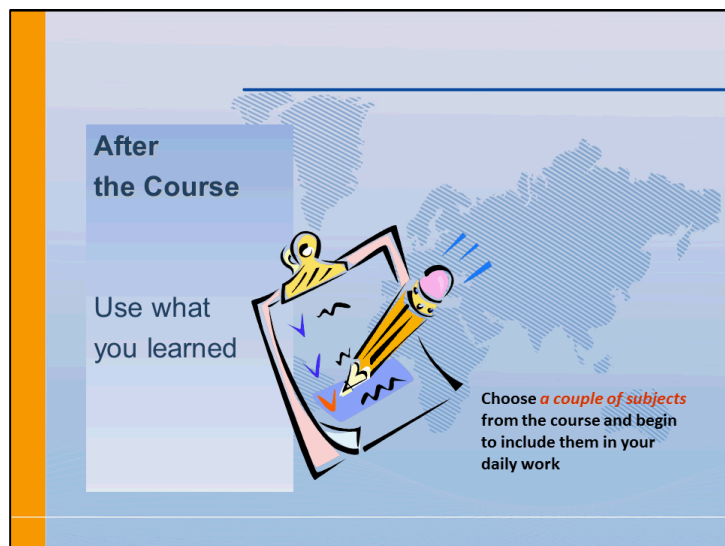
Designing Training Programs for a Biosafety Environment

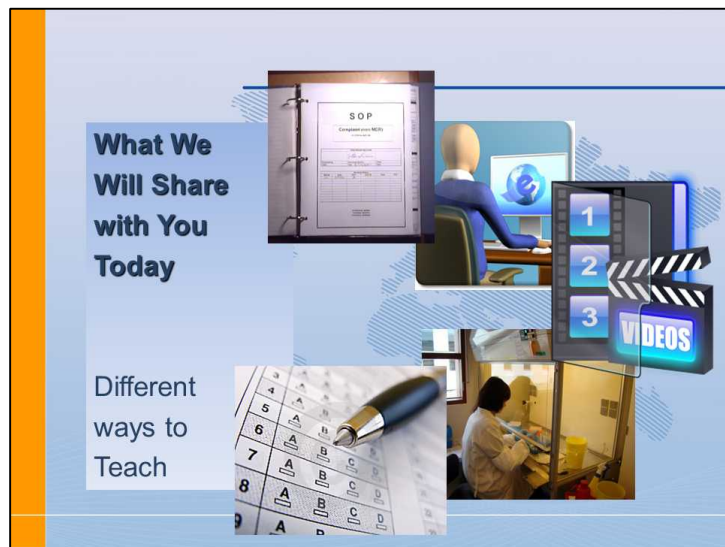
After the Course



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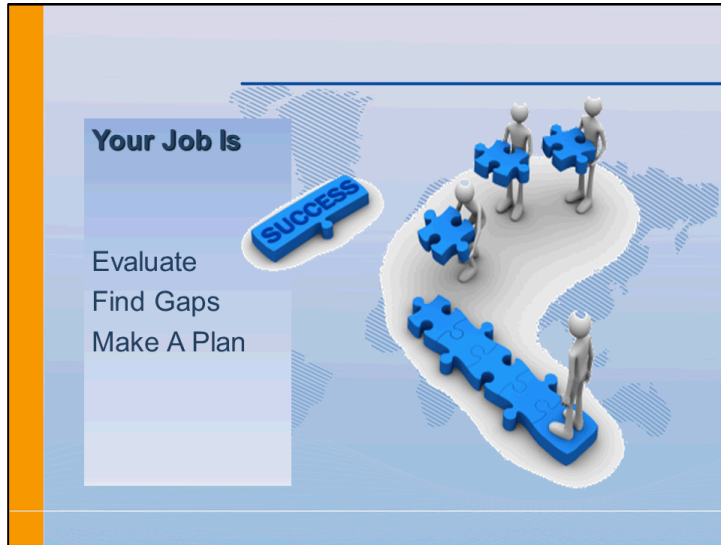
After the Course





- What makes a training method strong?

- How do I develop good training materials?

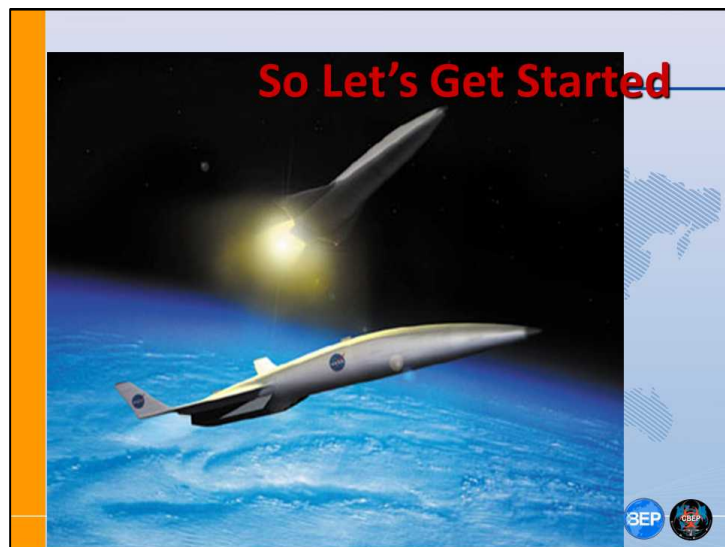


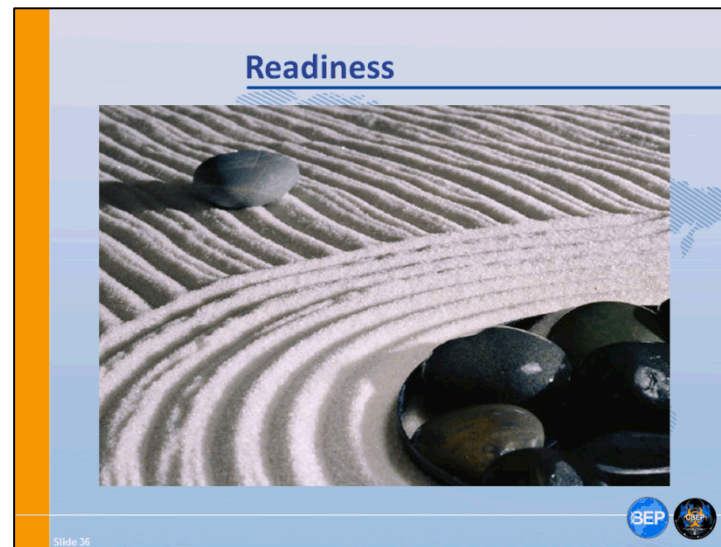
- Evaluate what you hear
- Finds gaps
- Draft an action plan to implement new training methods at home



Make an action plan!

Create a single page strategy focusing on the points you want to take home.



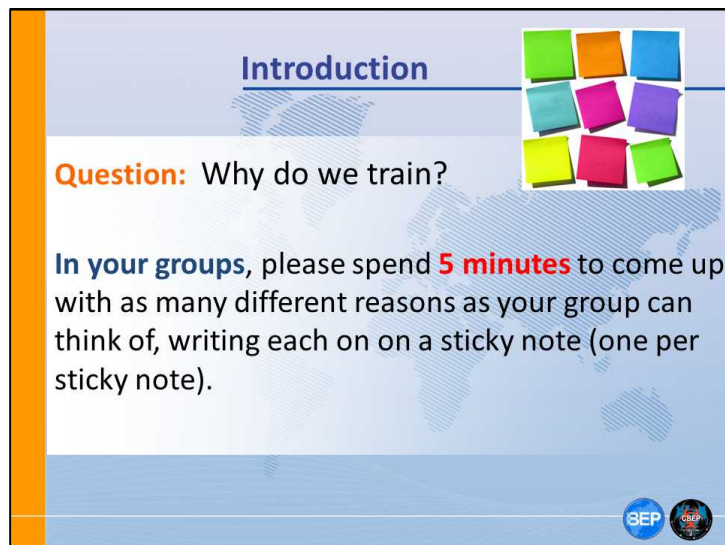


Agenda

- Welcome & Introduction
- Training for Biorisk Management
- Training Design Cycle
 - Analyze
 - Design
 - Develop
 - Implement
 - Evaluate
- Wrap-Up & Summary





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Introduction

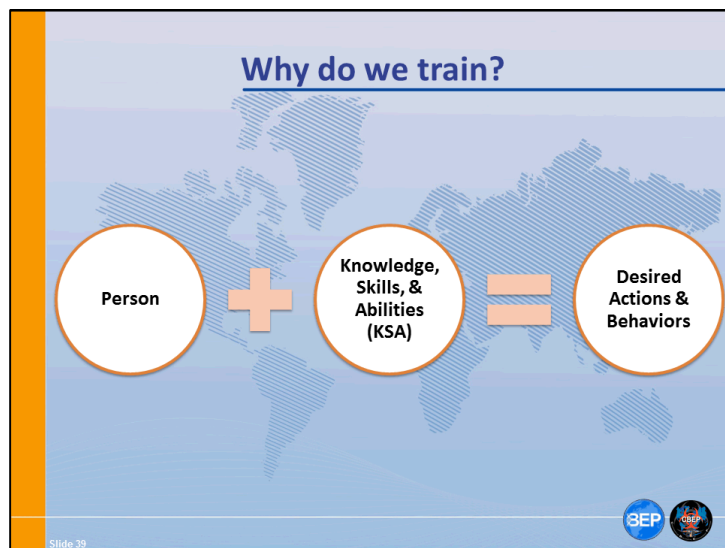
Question: Why do we train?

In your groups, please spend **5 minutes** to come up with as many different reasons as your group can think of, writing each on on a sticky note (one per sticky note).

Why do we train?

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Definitions

- Laboratory **biosafety**: containment principles, technologies, and practices implemented to prevent unintentional exposure to pathogens and toxins, or their unintentional release¹
- Laboratory **biosecurity**: protection, control and accountability for valuable biological materials within laboratories, in order to prevent their unauthorized access, loss, theft, misuse, diversion or intentional release²

¹Laboratory biosafety manual, Third edition (World Health Organization, 2004)




²Biorisk management - Laboratory biosecurity guidance (World Health Organization, 2006)



Definitions, continued


- The practices of laboratory **biosafety** and laboratory **biosecurity** are combined into an integrated effort known as **biorisk management** where the goals are, concurrently, to work safely and to keep the work secure.
 - Biorisk management can be further defined as the actions taken (by laboratories or facilities which handle, store, or dispose biological agents or toxins) to control or minimize biorisk to acceptable levels in relation to employees, the community and others, as well as the environment, which could be directly or indirectly exposed to biological agents or toxins (adapted from CWA 15793:2008¹).

¹Laboratory biorisk management standard (CWA 15793:2008)

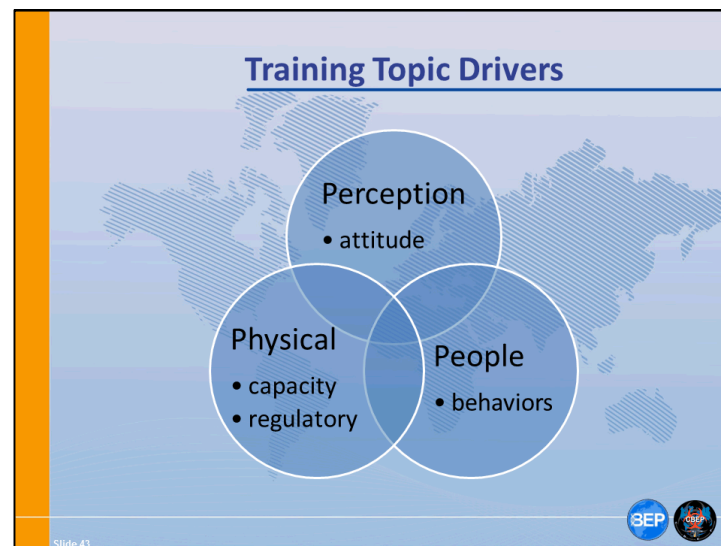


Biorisk Management Resources

- CWA 15793:2008 – Laboratory biorisk management standard (+ CEN WS 55 guidance)
- CWA 16335 - BioSafety Professional (BSP) Competences
- World Health Organization Laboratory Biosafety Manual
- World Health Organization Laboratory Biosecurity Manual
- OECD Best Practice Guidelines for Biological Resource Centres
- Guidelines for Biosafety Laboratory Competency (MMWR Supplement Vol. 60)
- Local guidelines & regulations
- Current best practices
 - example: U.S. Biosafety in Microbiological and Biomedical Laboratories



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Introduction

Question: What makes training “good”?

Individually, think of a training you attended that you really liked.

What did you like about the training session? What made the session different from other training sessions?

Please take **5 minutes** and write these notes in your workbook.



What makes training good?

What did you like about the training session?



What made the session different from other training sessions?

Introduction

Question: What makes training “good”?

As a group, take **10 minutes** to discuss the list you made in your workbook and see what items you have in common. On your flip chart, list 7 to 10 items that are important to memorable training sessions.

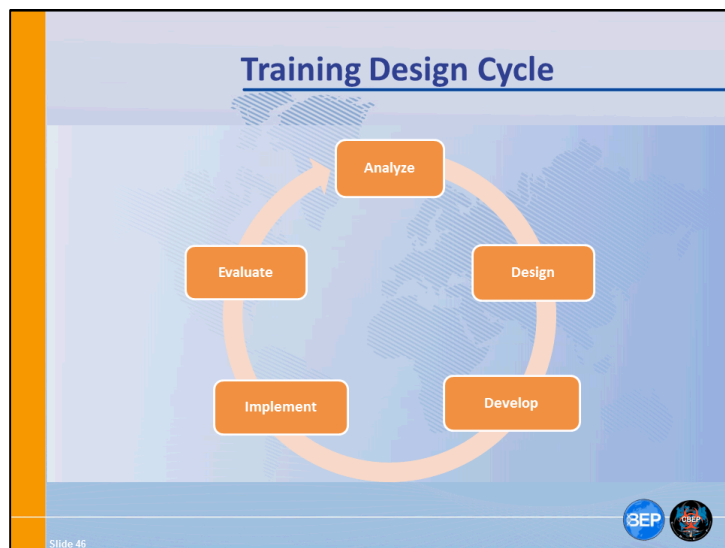
★ Throughout the course, if we’ve covered the quality you’ve listed, please put a star next to it.



What makes training good?

Designing Training Programs for a Biosafety Environment

Training Design Cycle





- A = Analyze
- D = Design
- D = Develop
- I = Implement
- E = Evaluatie

Designing Training Programs for a Biosafety Environment

Training Design Cycle: Analyze

Analyze



- What do you have?
- Where do you want to go?
 - Identify:
 - Learning “Problem”
 - Learning Environment
 - Constraints (Budget, Time, etc.)
 - Goals & Objectives
 - Audience’s Needs
 - Existing Knowledge



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Levels of Learning

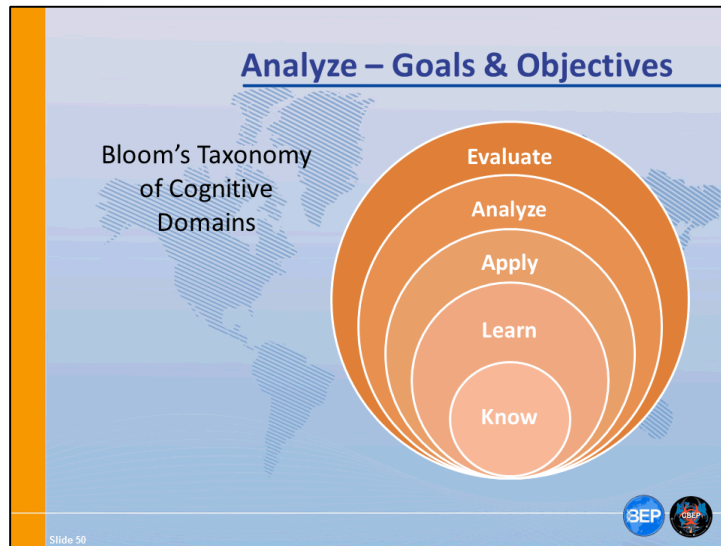
Level	Goal
Evaluate	Make judgments about the value of ideas or materials.
Analyze	Use concepts and models from training to create a new use
Apply	Applies what was learned in the classroom into novel situations in the work place
Learn (Comprehend)	Understand the meaning, translation, interpolation, and interpretation of the training. State a problem in one's own words.
Know	Remember material in the same form as it was taught



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Training Design Cycle: Analyze



Designing Training Programs for a Biosafety Environment

Training Design Cycle: Analyze

Example Objectives

- Organizational
 - Enhance effectiveness and sustainability of biorisk management training by using brain-friendly training techniques
- Instructional
 - Introduce validated concepts of instructional design and brain-friendly training techniques
 - Demonstrate the effectiveness of brain-friendly training techniques and training environment
 - Provide an opportunity for hands-on development of brain-friendly training activities



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Example Objectives, continued

- Personal – at the end of this session, students will:
 - Know
 - Useful models from learning science that will make developing training easier and also more effective
 - Feel
 - Excited about creating brain-friendly training sessions
 - Be Able to Do
 - Use validated instructional design processes to plan a biorisk management training session.



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Designing Training Programs for a Biosafety Environment


Training Design Cycle: Analyze

Activity - Analyze

Activity: For your group's chosen training topic, complete the Know, Feel, Do section of the training plan.

Ask a member of your group to complete the ANALYZE section of the Instructional Design poster.

Take **15 minutes**.



Training Topic:

Know:

Feel:

Do:

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Review of ANALYZE

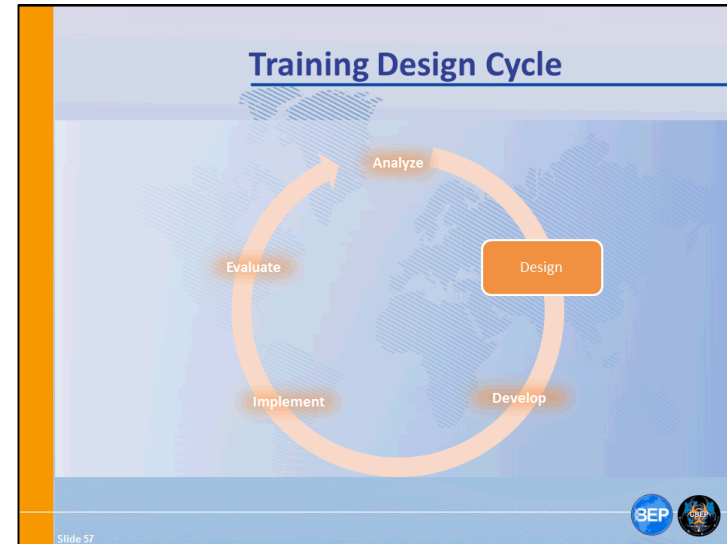

Review

To wrap-up, let's discuss what we learned about analyzing the needs and goals for our training topic.

What did we learn?

What does it mean?

Where do we go from here?



Designing Training Programs for a Biosafety Environment

Training Design Cycle: Design

Design

- Apply training strategies to achieve goals & objectives
- Design the students' experience
- Apply visual design (look & feel)

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Learning Styles

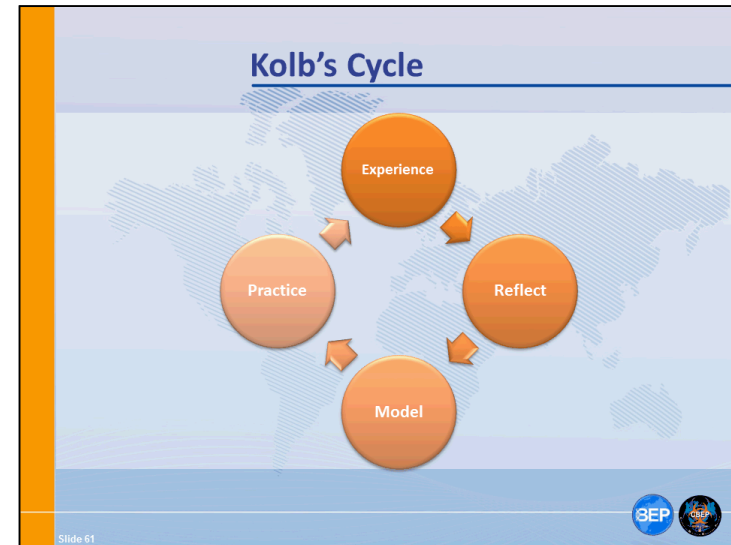
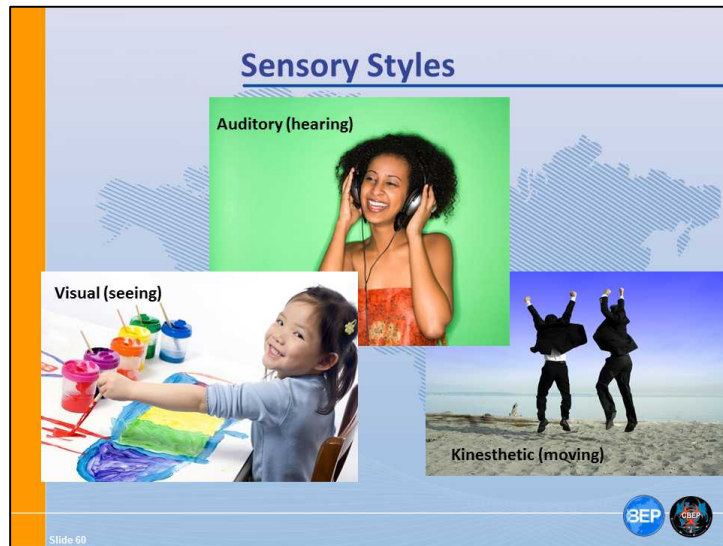


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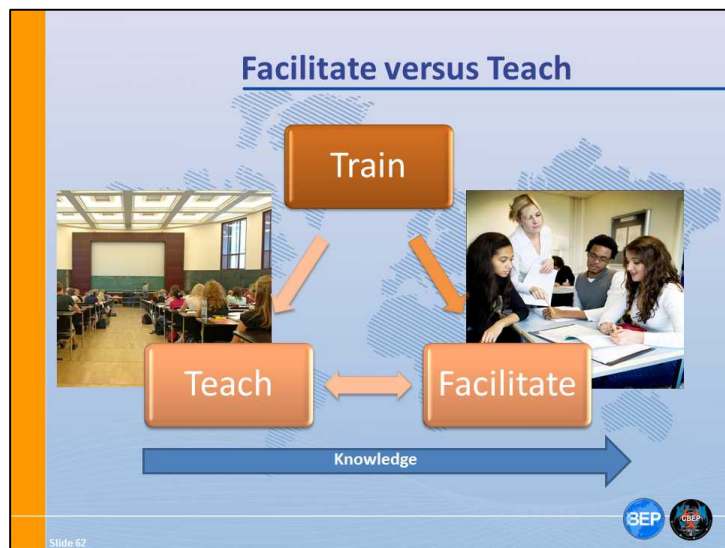
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Training Design Cycle: Design



Designing Training Programs for a Biosafety Environment

Training Design Cycle: Design



Example Activities

- Individual Work*
- Pair Work
- “Snowballing”*
- “Buzz” Groups
- Small Groups*
- Interactive Lecture*
- “Spin-off” Discussions
- Brainstorming*
- Games*
- Video
- Case Study*
- Role Play

*used during this course

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Review of DESIGN



Review

To wrap-up, let's discuss what we learned about designing specific training activities for your training topic.

What did we learn?

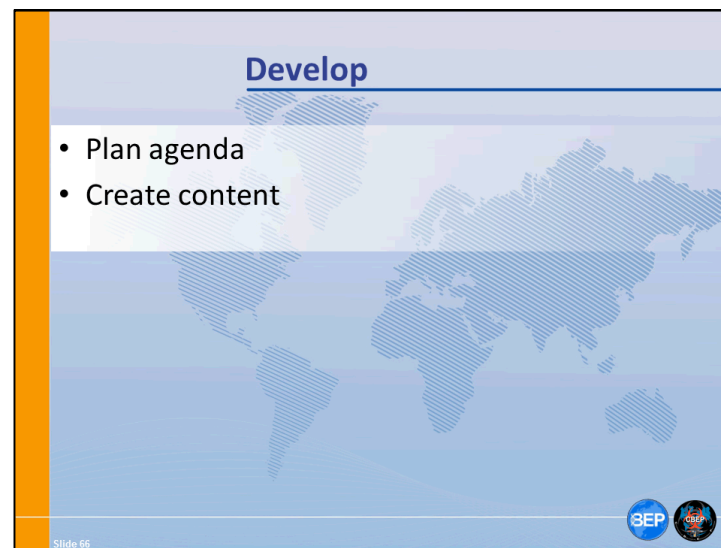
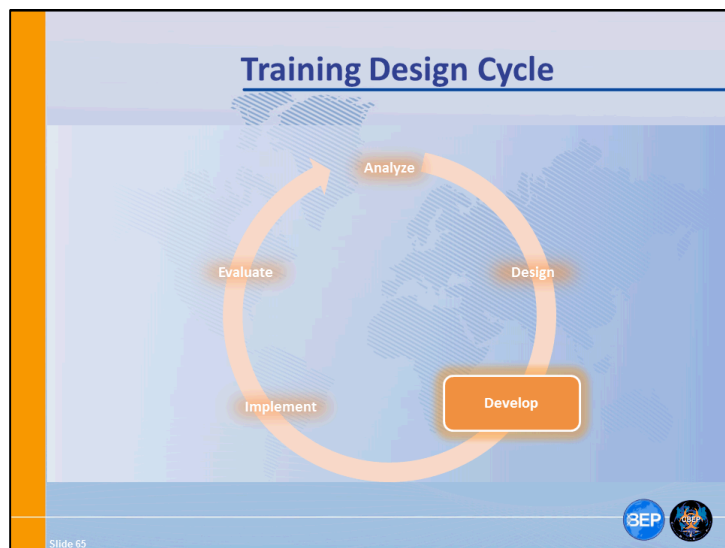
What does it mean?

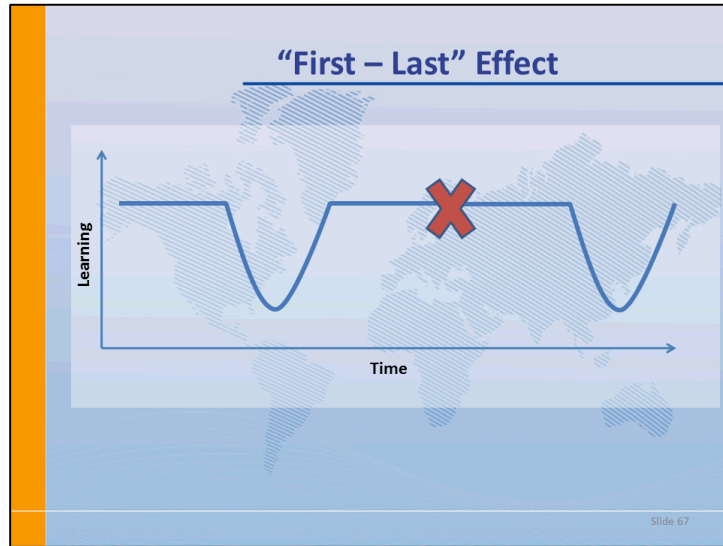
Where do we go from here?



Designing Training Programs for a Biosafety Environment

Training Design Cycle: Develop





Notes:

Chunking and Anchoring

- Chunking:
 - Our brains work best when asked to learn in “chunks”.
 - 7 pieces of information (plus or minus 2)
- Anchoring:
 - Hook training to something familiar
 - “Looks like. . .”






Types of Content

- Input (Teaching)
- Activities
- Movement
- Recap
- Debrief
- BREAKS
- Sleep
- Color - Visual
- Sounds
- Reflecting
- Etc.

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Agenda



- Set the stage
- Key message(s) – teach and/or facilitate
 - *remember Kolb's Cycle...*
- Debrief
- Breaks (< 90 minutes between breaks)
- Recap
- Evaluations



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Set the stage

- Welcome
- Housekeeping
- Objectives
- Agenda
- Activity to get students ready to learn and to open the door to the topic
- New day or topic – new stage-setting activity or recap from previous day or topic.



Key Message: Input & Activity

- Remember. . .
 - the **balance between teaching and facilitating** depends on the knowledge the students bring to the course.
 - **anchoring** the training to something familiar (like the students' experiences) will help preserve memory.
 - **Kolb's Cycle** (experience – reflect – model – practice)
 - focus on the **outcome**



Debrief

- To own the training, students need to know:
 - What?
 - Recap key message(s)
 - So What?
 - Why is this important to the student?
 - What's Next?
 - How can the student use this new information in their work?



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Recap

- Over time, the brain will “snip” memories that it thinks are unimportant.
- Recapping helps the brain decide to keep the memory.
- This should happen before and after significant breaks (lunch and overnight).
- Reconstruct, through an activity, the key terms, timeline, and/or models of the previous section.



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Review of DEVELOP

Review

To wrap-up, let's discuss what we learned about developing content and agenda for your training topic.

What did we learn?

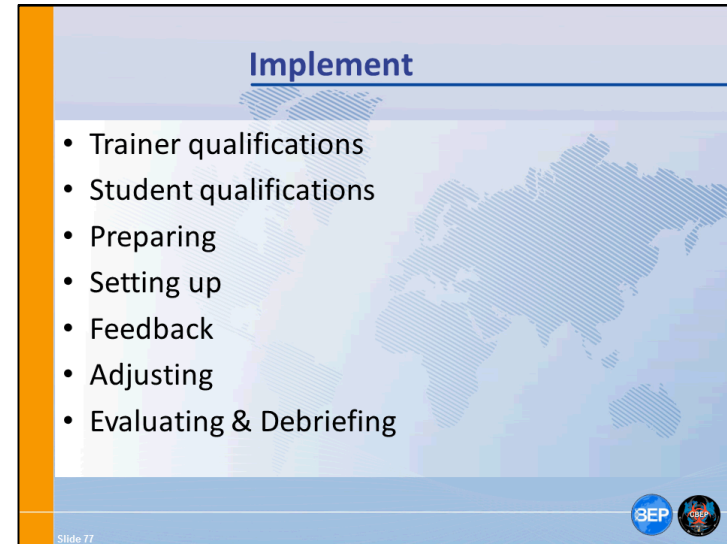
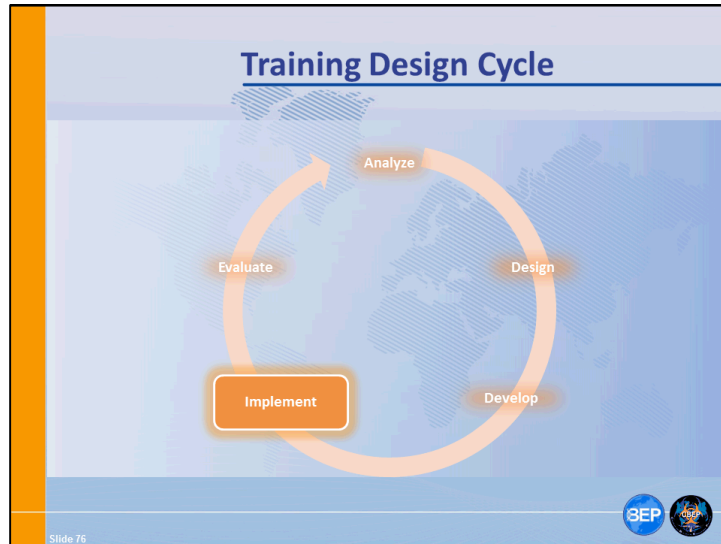
What does it mean?

Where do we go from here?

SEP

Designing Training Programs for a Biosafety Environment

Training Design Cycle: Implement



Review of IMPLEMENT

Review

To wrap-up, let's discuss what we learned about preparing to conduct a training session.

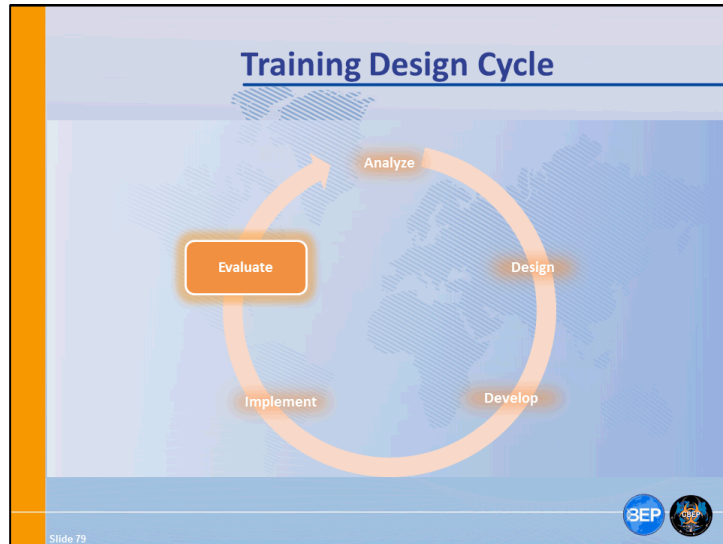
What did we learn?

What does it mean?

Where do we go from here?

BEP

Designing Training Programs for a Biosafety Environment



Training Design Cycle: Evaluate

Evaluate – Four Levels*

- Level 1
 - Was the student **happy** with the course?
- Level 2
 - Did the student **learn**?
- Level 3
 - Over time, did the student's **behavior** change to meet the desired objective?
- Level 4
 - Over time, did the **organization see improvement** in biorisk management?

*(Donald) Kirkpatrick Learning Evaluation Model

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3EP

Activity - Evaluate

Activity:

Individually, complete the Level 1 evaluation for this course. Take **5 minutes**

As you work, think about what other questions might be good to ask students in evaluating the success of the course and write those in your workbook.



What other questions would be useful to ask students?



Activity - Evaluate

Activity: For your group's chosen training topic, determine how you might conduct Level 2, Level 3, and Level 4 evaluations of that training.

Complete the EVALUATE section of your training plan.

Ask a member of your group to complete the EVALUATE section of the Instructional Design poster.

Take **10 minutes**.



How would you conduct a Level 2 evaluation?

Level 3?

Level 4?

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Review of EVALUATE

Review

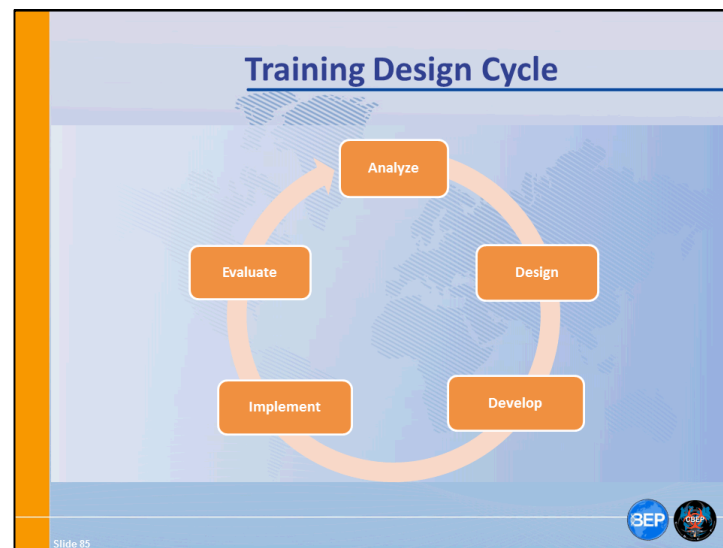
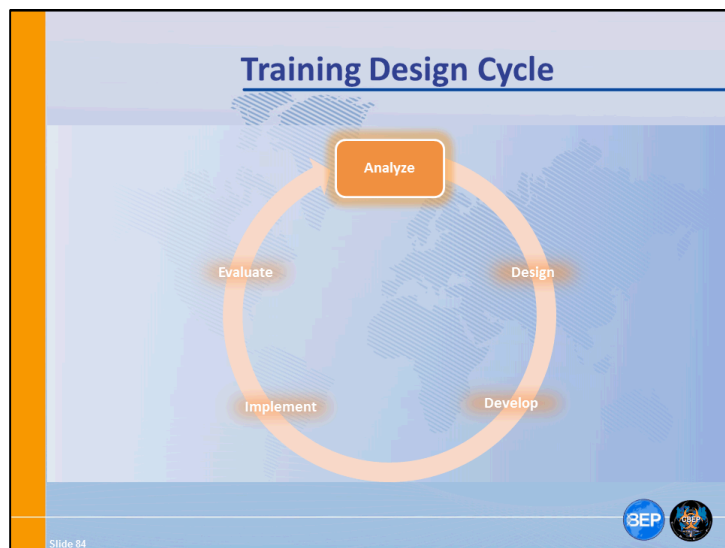
To wrap-up, let's discuss what we learned about evaluating training effectiveness.

What did we learn?

What does it mean?


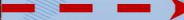

Where do we go from here?



SEP



Recap Timeline

- Pick a card randomly from the Timeline Deck.
- Be prepared to say what you learned about the topic on your card.
- As a class, construct a timeline for this course using the cards.





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