

What is Mold?

Objectives:

Write on a flipchart:

- ✚ Explain what mold is.
- ✚ Explain what a spore is.
- ✚ List the characteristics used to identify spores.
- ✚ Explain the 5 things mold needs to grow.
- ✚ List the favorable growing conditions for mold.
- ✚ List the favorable wood moisture conditions for mold growth.

Show power point presentation:

(30 minutes)

Introduction slide: Map

Slide 1: Mold

Slide 2: Map

Slide 3: Mold is everywhere

Slide 4: how long has mold been around (bible)

Slide 5: Everyone has seen mold

Slide 6: What is Mold

Slide 7: explain the kingdoms of life. (Heterotrophic means requiring complex, organic food in order to grow and develop, in contrast to plants, which can synthesize food from inorganic matter.)

Slide 8: mold definition

- Slide 9:** Spores definition (a spore is a small reproductive body capable of growing into a new organism.
- Slide 10:** germinating aspergillus mold spore
- Slide 11:** germinating syncephalastrum spore
- Slide 12:** explain Mycology and building mycology:
Ask: why do you think they have building mycology? Sick building
- Slide 13:** important to distinguish between mold, viruses and bacteria
- Slide 14:** fungal identification: only 1% have been identified of over 100,000 kinds on mold. FIY:(four Phylum Zygomycota, (Zygomycetes), Basidiomycota, (Basidiomycetes) Ascomycota, (Ascomycetes)
Mytosporic Fungi
- Slide 15:** 6 characteristics of mold
- Slide 16:** septation: (the divisions within the spore. The lines on the spore, straight, checker board and so forth. The field of view of these pictures is 10 microns)
- Slide 17:** points of attachment: the picture of the left shows the ends of the points of attachment. The picture of the right shows how these spores attach to each other. Notice the bamboo like appearance.
- Slide 18:** shape: curved, oblong, round, chained
- Slide 19:** color: dark brown, black, hyaline & transparent
- Slide 20:** heavy ornamentation: smooth, fragmented, heavy ornamentation, bumpy

Slide 21: size: spore size in microns

Slide 22: five things that mold needs to grow: air, food source, surface to grow on, desirable temperature, Moisture

Slide 23: mold grows within 24-48 hours once it has a water source

Slide 24: organic food source wood, plants, paper

Relative humidity between 50 and 90%

Warm temperature between 60 and 90 degrees

Stagnant air. Just remember that mold can grow in any temperature it just likes these conditions the best.

Slide 25: favorable wood moisture conditions for mold

8-12% normal moisture content

Greater than 15% can result in mold growth

Greater than 20% can result in dry rot

Slide 26: favorable construction materials for mold growth

Wood plasters drywall

Fiberboard concrete

New building materials

Sealing compounds plastics Tyvek

FYI: Some of the problems is that the homes and buildings were so tight up because of the cost of gas in the 80's that they could not longer air out and would hold moisture even with the new building materials, mold likes them just as much as the old materials.

Slide 27: Ask: where do you think the mold growth originated? In the corner.

Ask: How can you tell? The darkest area is in the corner. It gets lighter as you move out form the corner where the mold is still spreading and growing.

Slide 28: mold growth in a air conditioning/ventilation grill.

Ask: where do you think the mold spores will travel from here?

In you work or living area.

Slide29: mold growth on insulation. FYI: the problem with mold growing on the underside you don't know you have mold sometimes until it is to late. You see a small patch on the other side and don't always look to see what is growing above the patch you see.

Slide 30: Ask: what do you notice in the picture?

Water stain

Documentation of the location

Bring up: this is a good practice for when you are in the monitoring & assessment phase. It will help in planning the remediation phase.

Slide 31: point out the darker to light area.

Ask: where would you look for moisture source in this case?

Slide 32: Unattended water leak.

Ask: what other issues would you have a concern with in this situation?

Electrical outlet.

Ask: why is this a concern?

Because it is a potential shock hazard, the mold may degraded the wire insulation. In remediation if you were to cut this wall out with a saw you could come in contact with a live wire, not to mention the fire potential.

Slide 33: checking a ventilation grill for mold colony.

Ask: is Tyvek enough to protect this person?

Ask: what else should be worn?

Respiratory protection

Slide 34: mold growth on a heating or air conditioning outlet.

Ask: have you ever seen this in your first house apartment?

Ask: how many of you just painted over it?

Slide 35: mold growth inside a ventilation duct.

Ask: what can you do to stop mold growth like this?

One way is to use UV light. UV light possesses just the right amount of energy to break organic molecular bonds. As micro-organisms pass by the UV rays radiated from the UV lamp, this bond-breakage translates into cellular or genetic damage for micro-organisms like mold.

Slide 36: mold growth as a result of plumbing backup.

Ask: what other issues might you have when you start to clean up this area?

E. Coli

Hepatitis

And other biohazards

Slide 37: mold growth in a garage. Notice the water stains

Slide 38: explain the different types of moisture that you have to look for

FYI: remember that moisture comes in many different forms.....ask

participants for some other types of moisture.

Slide 39: any questions? Small group activity

Pass out small group activity

(15 minutes)

Explain: that they can find the answers in the resource manual. Let them know they have about 15 minutes and then you will have a report back

What is Mold

Small Group Activity

1. Are there any current federal regulation standards for mold regulations?

There are currently no specific OSHA Standards. However, the General duty Clause requires employers to provide a safe working environment.

2. Mold belongs to what kingdom?

Fungi

3. Mycology is the study of what?

Fungi

4. What does mold have in common with and bacteria?

All can grow in moist conditions. All can cause disease.

5. What are the five things that mold needs to grow?

Air, A Food Source, A Growth Surface, A Desirable Temp Range, Moisture

6. What are some of the favorable conditions for mold growth?

An organic source of food. Relative Humidity 50% - 90%. Temperature between 60° and 90° F. Moisture

7. How are mold spores identified?

By phylum

8. What are the six characteristics that are used to identify mold spores?

Shape, Size, Ornamentation, Septation, Color, Points of Attachment

9. What are some different types of moisture to look for?

Plumbing Leaks, Steam (Cooking/Shower), Ice Buildup, Water Run-off, Condensation (Heating & Cooling)

Report Back of Small Group Activity: (15 minutes)

Summarize: (10 minutes)

Either do this in your own words or go back over your objectives and use them to summarize.