

Name _____ Block _____

Penn State “Digital Photography” Learning Site

Objectives: Use the online tools to explore the concepts of depth of field, focal length, white balance, shutter speed, exposure, and ISO and how to manipulate digital camera settings to achieve a desired photography effect.

Instructions: Go to <http://photo.comm.psu.edu>, complete the activities for each section, and answer the following questions. Ask for help if you get confused!

DEPTH OF FIELD

1. “Depth of field” refers to:
2. What 3 aspects of photography affect depth of field in a photo?
3. How can depth of field be used as a creative device in photography?
4. The _____ the aperture opening (or higher the f-stop #), the more of the image that will be in focus.

***** Click through the various settings and change the aperture to see the different levels of depth of field in the example photo of the three soldier men. *****

5. Which f-stop allows MORE light to pass through the lens – **f/16** or **f/2.8**?
6. Which f-stop lets in LESS light through the lens – **f/22** or **f/2.8**?
7. Which f-stop offers MORE depth of field (meaning MORE of the image is in focus) – **f/22** or **f/2.8**?
8. When you adjust the aperture/f-stop, you will also need to adjust the shutter speed as a result in order to achieve correct exposure. If you increase the f-stop # (which makes the aperture hole smaller), will you need to make your shutter speed **slower** or **faster** to compensate? _____
(Hint: look at the example on the website... f/2.8 at 1/2000 of a second goes to f/4.0 at 1/1000 sec. Also try thinking of it this way: if you are letting less light in through a smaller aperture opening, will you need the shutter to go faster or slower to make up for the smaller hole letting light in at a slower pace?)

FOCAL LENGTH

9. Focal lengths are used to measure the angle views of _____.
- The typical unit of measurement is a _____ (abbreviated mm).

10. What are the 3 types of focal lengths? What is the mm range for each type?

***** Click through the various settings and change the focal length of the lens to see the different views in the example photo of the building *****

11. What type of lens is being used in the first photo? Describe what you see in the first photo at 14mm:

12. Increase your focal length to 70mm. How has the photo changed compared to the 14mm photo?

13. Which focal length lets you zoom in the closest? _____

Describe what you see in that photo:

WHITE BALANCE

14. Why would you want to adjust the white balance of a photo for a specific source of light?

15. List the 5 examples of sources of light shown in the example:

16. Click on the 5 light source buttons. Which do you think gives the best picture of the snow scene—why?

SHUTTER SPEED

17. Shutter speeds designate the length of exposure in _____.

18. A shutter speed of _____ or slower shooting a moving subject will result in blur.

19. A shutter speed of _____ or faster is generally used for most sports photography.

20. What is the risk of hand-holding a camera at slow shutter speeds? What is an easy accessory to help you stabilize a camera for slow shutter speed use?

***** Click through the various settings and change the shutter speed to see the different shots of the example photo of the amusement park ride. *****

21. Circle which shutter speed is FASTER for the following options:

- 1/13 or 1/125
- 1/30 or 1/500
- 1/160 or 1/20
- 1/1000 or 1/2000
- 1/320 or 1/100

22. Which shutter speed provides the best photo of the amusement park ride (in your opinion) and why?

EXPOSURE

23. What is exposure?

24. What 2 variables affect exposure?

***** Click through the various settings and change the aperture to see the different shots of the example photo of the lion. (The shutter speed remains constant at 1/250 so you can see the effects of changing the aperture – but normally when the f-stop changes, so does the shutter speed.) *****

25. The setting of the first photo of the lion is _____ at _____. Is this photo **overexposed** or **underexposed**? How do you know? (Describe the photo quality.)

26. The setting of the last photo of the lion is _____ at _____. Is this photo **overexposed** or **underexposed**? How do you know? (Describe the photo quality.)

27. Which f-stop & shutter speed provides the best photo of the lion (in your opinion) and why?

ISO

28. What does the ISO camera setting determine?

29. If you have your ISO set to a low number, you need _____ light to properly expose the image.
(In other words, if you are shooting outside on a nice bright, sunny day, a low ISO will work just fine!)

30. If you have your ISO set to a high number, you need _____ light to properly expose the image.
(In other words, if you are shooting outside at night or inside a poorly-lit gymnasium, you probably need a higher ISO number.)

31. Photographers often use a _____ ISO to capture action in low-light situations or to avoid having to use a flash.

***** Click through the various settings and change the ISO to see the different example shots of the flowers. Pay close attention to the details and smoothness of the photos. *****

32. Which ISO setting requires MORE light – **ISO 200** or **ISO 3200**?

33. What is “noise” in a photo?

34. You can get “noise” in a photo when using a **HIGH** or **LOW** ISO? _____

35. Comparing the sample flower photos, which ISO provides the best photo quality (in your opinion) and why?

IN YOUR OWN WORDS...

36. What are the benefits of learning about the concepts of depth of field, focal length, white balance, shutter speed, exposure, and ISO? In your opinion, why do you think it is important for a photographer to understand these concepts?