KAUST Photography SDG

GET TO KNOW YOUR CAMERA

Getting the Light Right

Getting a picture that's not too bright or dark is about getting the right exposure – so make sure your **aperture** and **shutter speed** are suitable for the situation (and balancing each-other 'correctly')

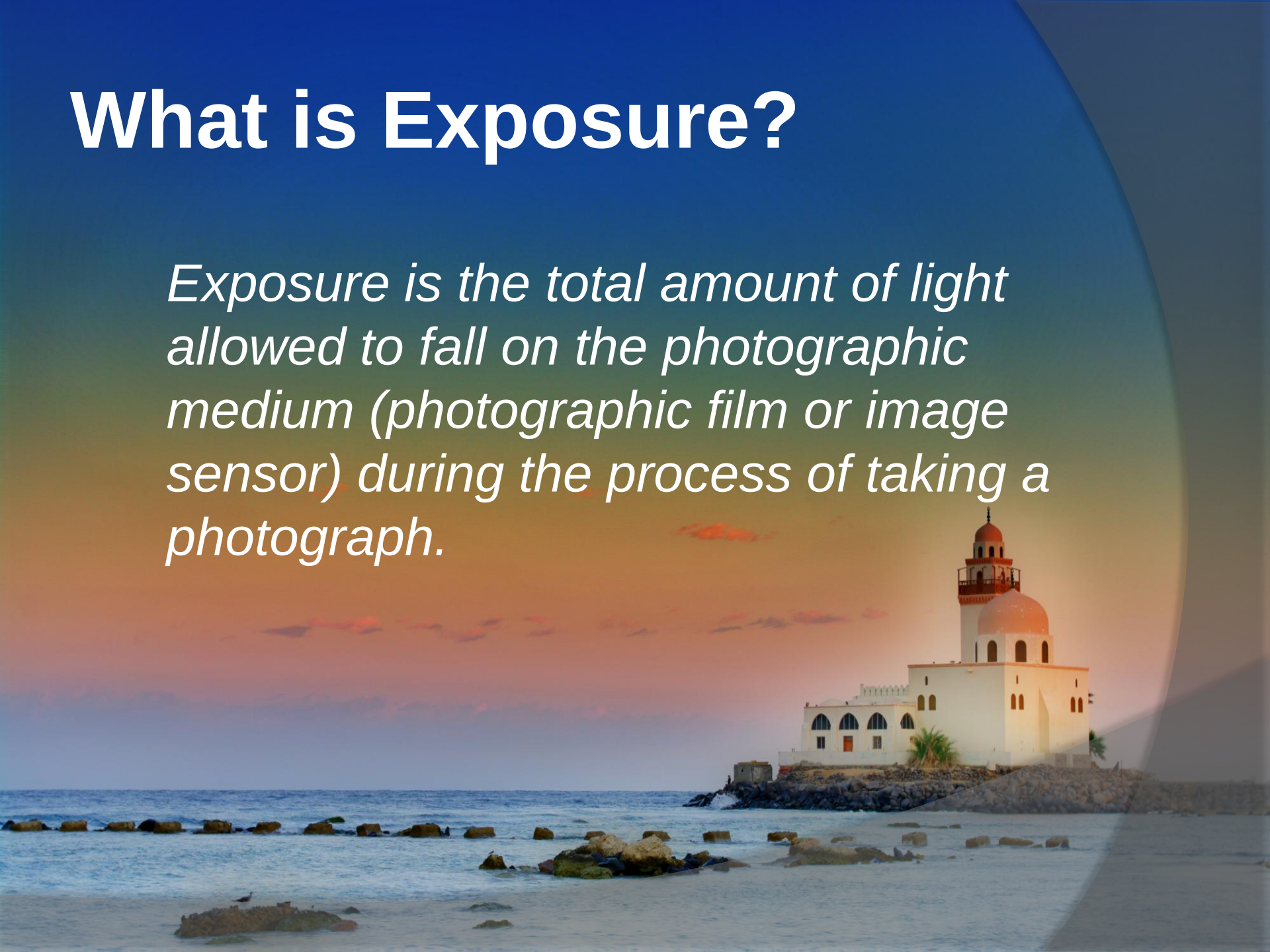
Shorter Shutter Speed - Shorter Exposure

Longer Shutter Speed - Longer Exposure

Longer shutter speeds (or **long exposure**) capture more detail in dark scenes and can allow for more elaborate 'light trail' effects *(though you might not want one or the other, in which case you could balance it with the aperture differently)*

What is Exposure?

Exposure is the total amount of light allowed to fall on the photographic medium (photographic film or image sensor) during the process of taking a photograph.



What is Exposure?

- Shutter Speed - Controls the amount of time sensor is subjected to light
- Aperture - Controls the amount of light that reaches the sensor
- ISO - Control how sensitive the sensor is to light

Exposure

An analogy for exposure is to imagine the light to be water traveling through a pipe.

Aperture

How much water comes through the pipe as controlled by opening or closing the valve.

Shutter Speed

How much water comes through the pipe controlled by the size (diameter) of the pipe.

ISO

How much water comes through the pipe controlled by the water pressure from the source.

SLR STANDS FOR SINGLE LENS REFLEX

- Have larger sensors, resulting in greater image quality

- Tend to favor manual control, lacking many automatic settings found on P&S

- Much larger and heavier

- Ability to interchange system lenses

Digital Camera Common Settings
Automatic

- Auto Mode
- Camera picks the best setting for the shot
- You are not giving it any more information to decide on what to do.

Portrait Mode 

- Used for photographing a single subject
- Get in close to your subject (either by zooming in or walking closer)
- Photograph the head and shoulders of the person.

Macro Mode 

- Made for taking close up pictures.
- It's great for shooting flowers, insects or other small objects.
- Keep your camera and the object you're photographing parallel or you'll find a lot of it will be out of focus.
- **No Flash** - will be too bright.

Landscape Mode 

- Allows as much of the scene you're photographing to be in focus as possible
- ideal for capturing shots of wide scenes, particularly those witch points of interest at different distances from the camera.

Sports Mode 

- For moving objects
- Examples: people playing sports, pets, cars, wildlife etc.
- Sports mode attempts to freeze the action by increasing the shutter speed.

Night Mode 

- For shooting in low light situations
- Sets your camera to use a longer shutter speed to help capture details of the background
- it also **fires off a flash** to illuminate the foreground (and subject).
- This is a really fun mode to play around with and can create some wonderfully colorful and interesting blurred background shots.

Camera Modes

- Full Automatic
- Aperture Priority
- Shutter Priority
- Manual

Automatic Modes

Automatic camera modes are best used when the photographer does not need to worry about anything but capturing the image. A good example is a *Cameraphone Snapshot*.

Mode: Program (P)

- Some digital cameras have this priority mode in addition to auto mode (in a few cameras Program mode IS full Auto mode… confusing isn't it!). In those cameras that have both, Program mode is similar to Auto but gives you a little more control over some other features including flash, white balance, ISO etc. Check your digital camera's manual for how the Program mode differs from Automatic in your particular model.

Mode: Aperture Priority (AV)

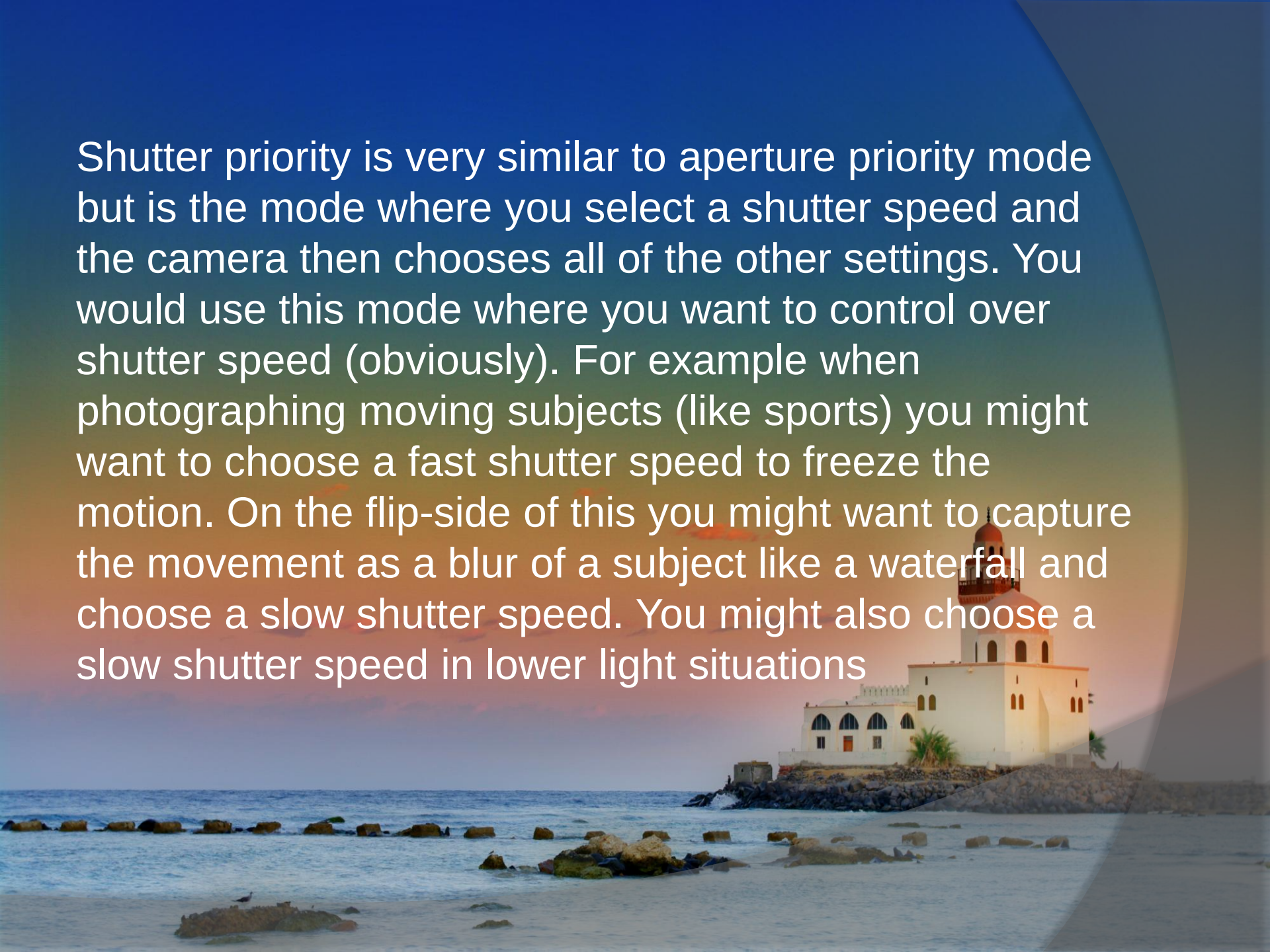
- Photographer selects Aperture
- Camera sets corresponding shutter speed.
- Best used when photographer wants to control *Depth-of-Field*

This mode is really a semi-automatic (or semi-manual) mode where you choose the aperture and where your camera chooses the other settings (shutter speed, white balance, ISO etc) so as to ensure you have a well balanced exposure. Aperture priority mode is useful when you're looking to control the depth of field in a shot (usually a stationary object where you don't need to control shutter speed). Choosing a larger number aperture means the aperture (or the opening in your camera when shooting) is smaller and lets less light in. This means you'll have a larger depth of field (more of the scene will be in focus) but that your camera will choose a slower shutter speed. Small numbers means the opposite (ie your aperture is large, depth of field will be small and your camera will probably choose a faster shutter speed).

Mode: Shutter Priority (TV)

- Photographer selects Shutter Speed
- Camera sets corresponding Aperture
- Best used when photographer wants to control stopping of motion.

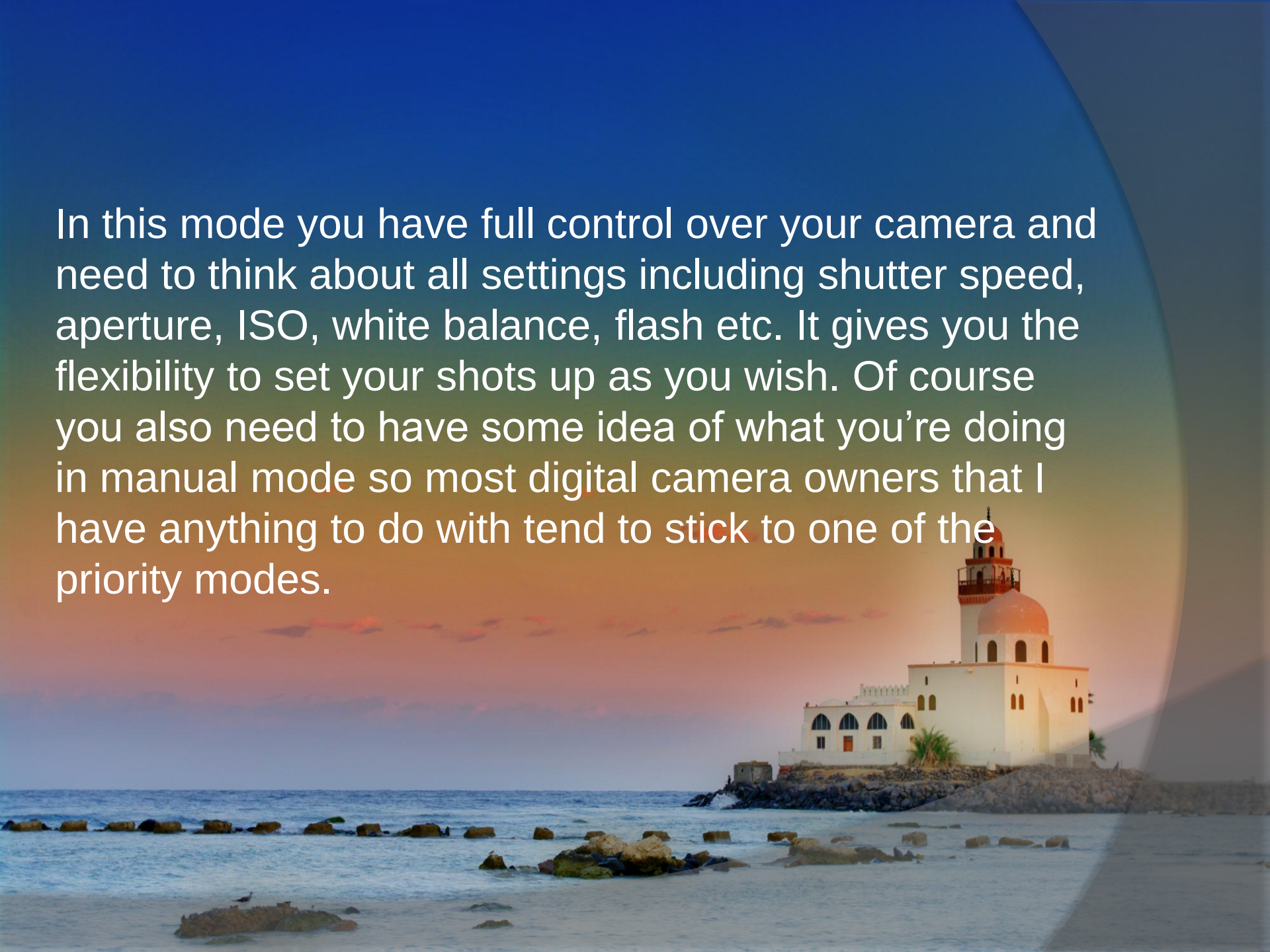
Shutter priority is very similar to aperture priority mode but is the mode where you select a shutter speed and the camera then chooses all of the other settings. You would use this mode where you want to control over shutter speed (obviously). For example when photographing moving subjects (like sports) you might want to choose a fast shutter speed to freeze the motion. On the flip-side of this you might want to capture the movement as a blur of a subject like a waterfall and choose a slow shutter speed. You might also choose a slow shutter speed in lower light situations



Mode: Manual (M)

- Photographer sets Shutter Speed, Aperture and ISO
- Best used when photographer wants full control of every variable of the exposure.

In this mode you have full control over your camera and need to think about all settings including shutter speed, aperture, ISO, white balance, flash etc. It gives you the flexibility to set your shots up as you wish. Of course you also need to have some idea of what you're doing in manual mode so most digital camera owners that I have anything to do with tend to stick to one of the priority modes.



f/stop Values

- Exposure is measured in increments called f/stops.
- Different but equal measures for each setting (aperture, shutter speed, ISO)

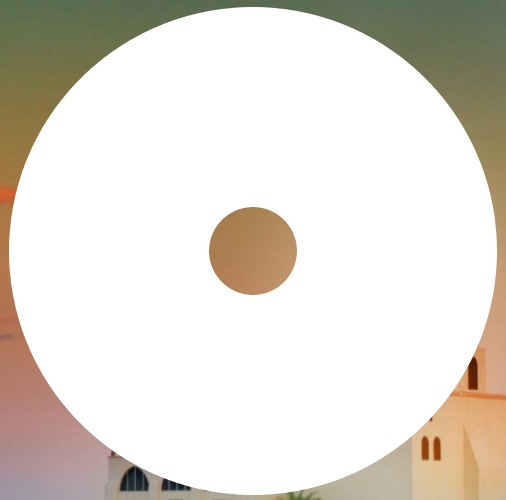
Aperture f/stop Values

- Low number lets in more light (larger opening)
- High number lets in less light (smaller opening)

Aperture f/stop Values

f/1.8

f/16



Aperture f/stop Values

1.2 - 1.4 - 1.8 - 2.8 - 4 - 5.6 - 8 - 11 - 16 - 22 - 32 (etc…)

Shutter Speed f/stop Values

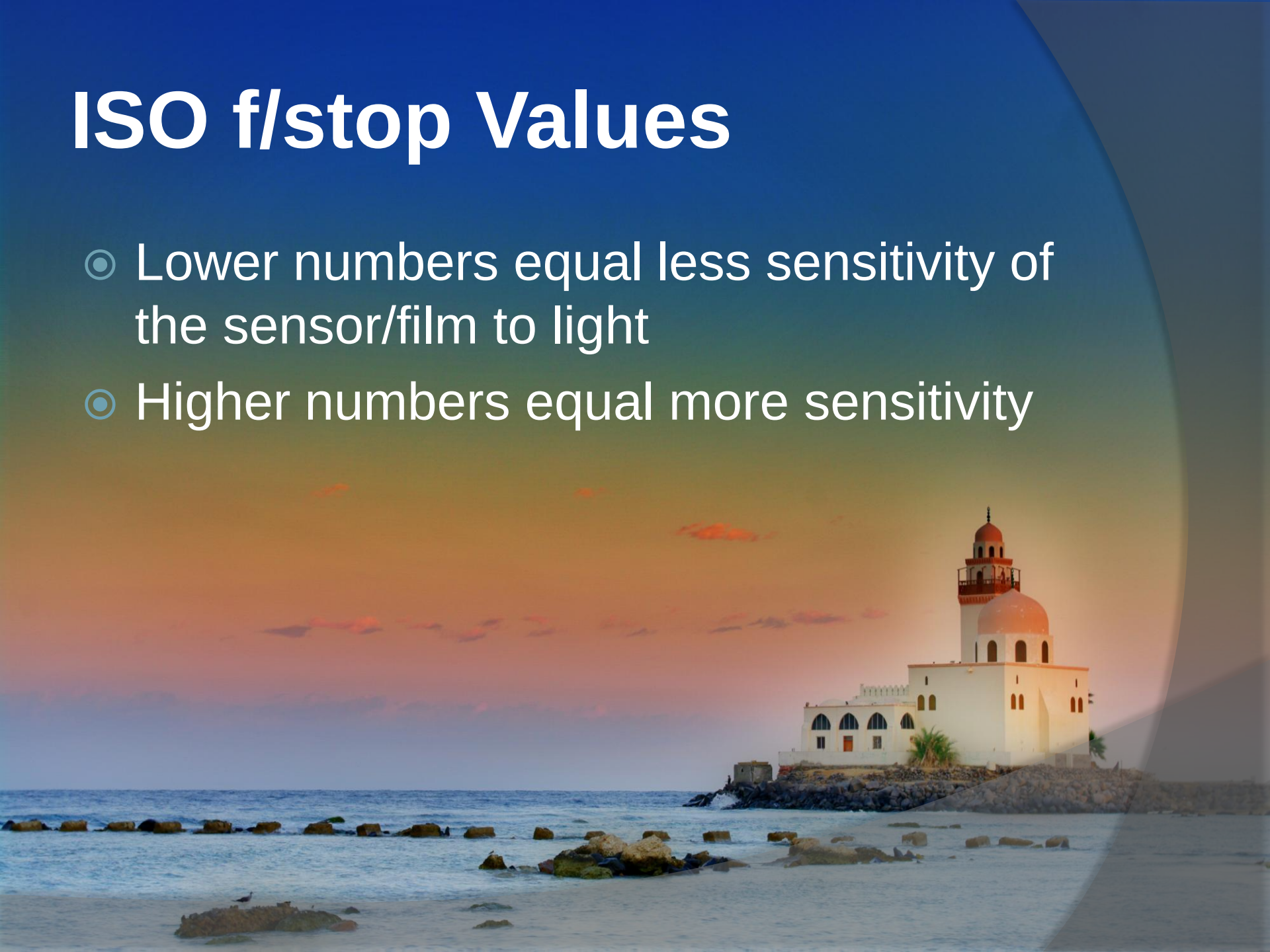
- Measured in fractions
- Lower number (as a fraction) lets in less light
- Control dials typically omit the “1/xxx”

Shutter Speed f/stop Values

1 - 1/2 - 1/4 - 1/8 - 1/15 - 1/30 - 1/60 - 1/125 - 1/250 - 1/500 - 1/1000 - 1/2000 - 1/4000 - 1/8000

ISO f/stop Values

- Lower numbers equal less sensitivity of the sensor/film to light
- Higher numbers equal more sensitivity

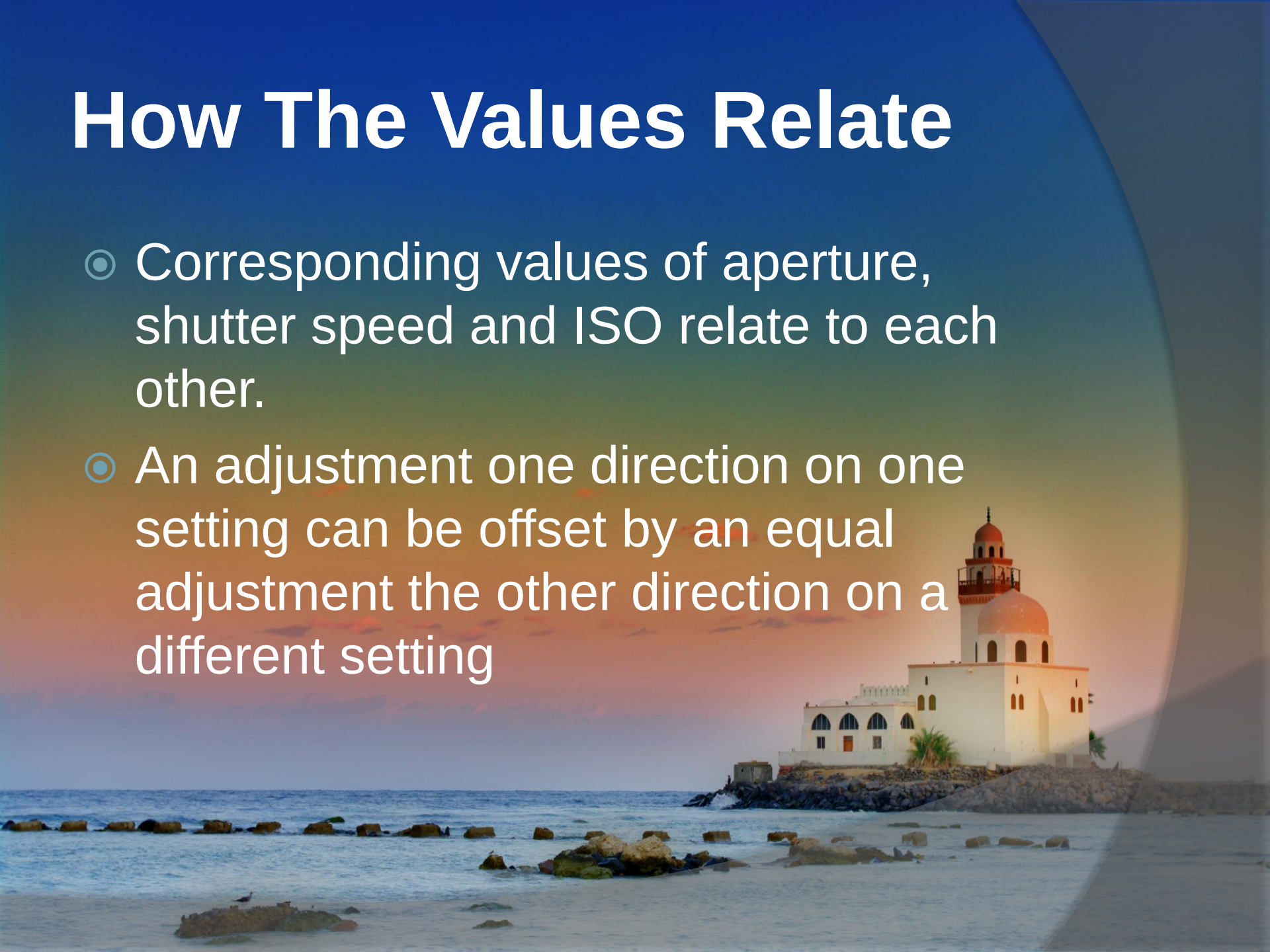


ISO f/stop Values

50 - 100 - 200 - 400 - 800 - 1600 - 3200 - 6400 - 12,800 - 25,600 etc…

How The Values Relate

- Corresponding values of aperture, shutter speed and ISO relate to each other.
- An adjustment one direction on one setting can be offset by an equal adjustment the other direction on a different setting



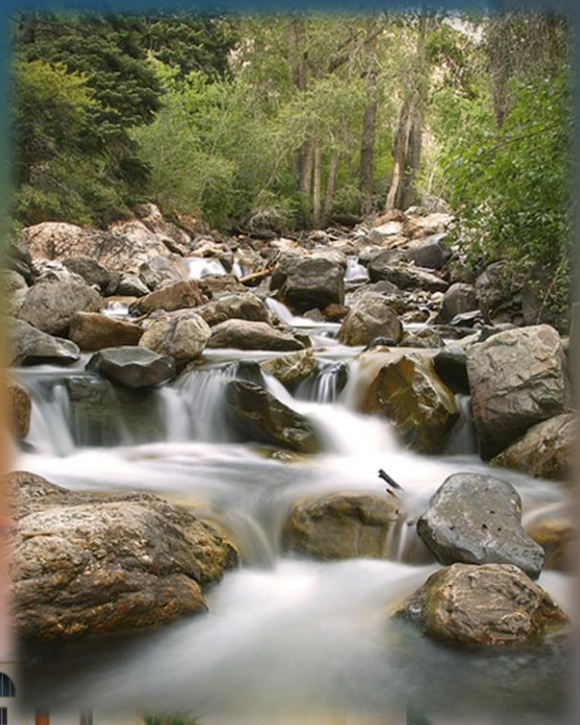
How The Values Relate

All of these exposures are Equal

- 1/60 second, f/4, ISO 100
- 1/125 second, f/2.8, ISO 100
- 1/30 second, f/5.6, ISO 100
- 1/60 second, f/5.6, ISO 200
- 1/4 second, f/16, ISO 100

Application

- Want blurred water in a flowing stream
- Meter: f/4, 1/125 second, ISO 100
- What adjustment would you make?



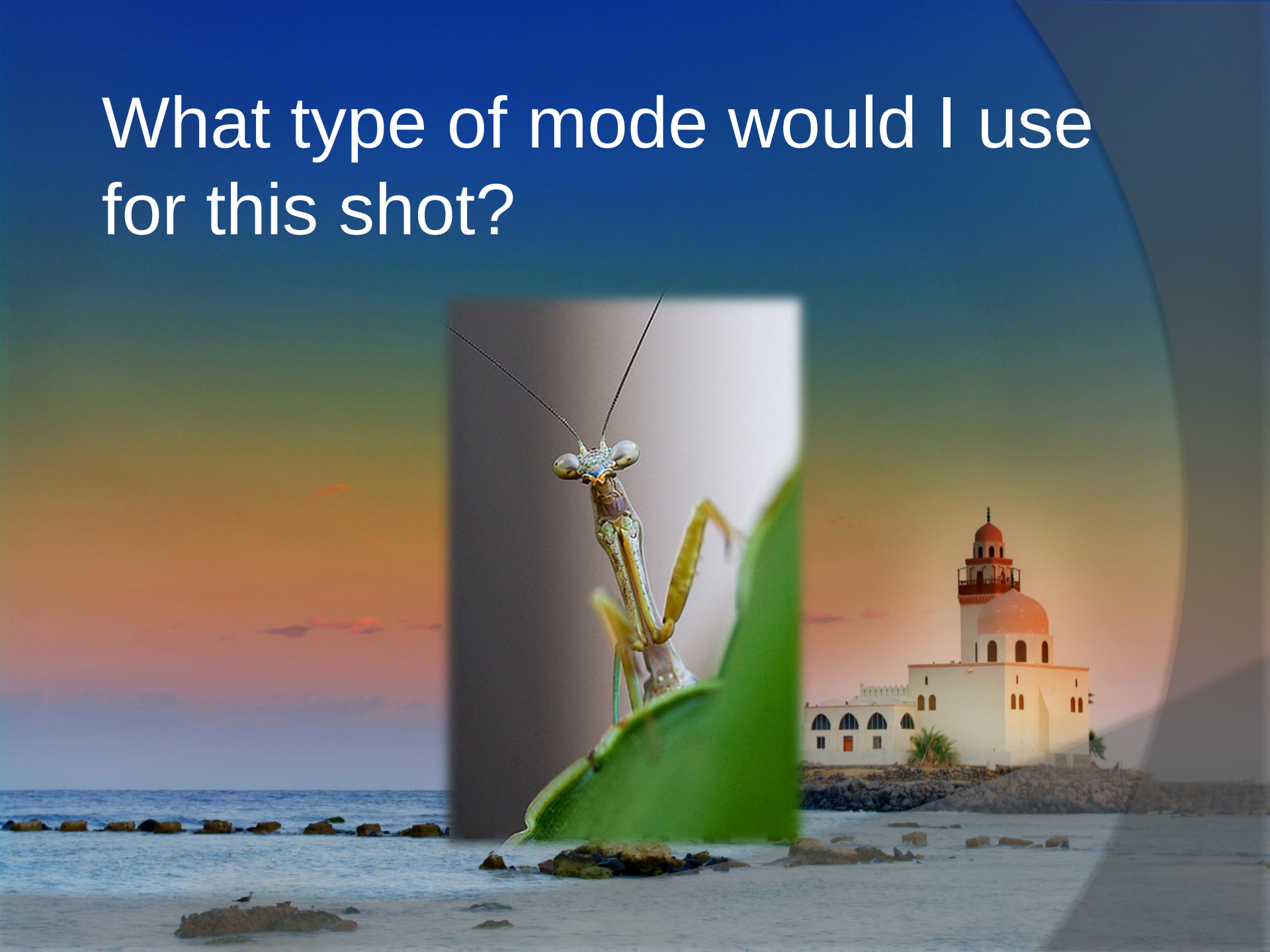
Application

- Want an out of focus background in a portrait
- Meter: f/8, 1/30 second, ISO 100
- What adjustment would you make?

Application

- Want to handhold a picture at night
- Meter: f/4, 1/2 second, ISO 100
- What adjustment would you make?

What type of mode would I use for this shot?



What type of Mode Should I use for this shot?

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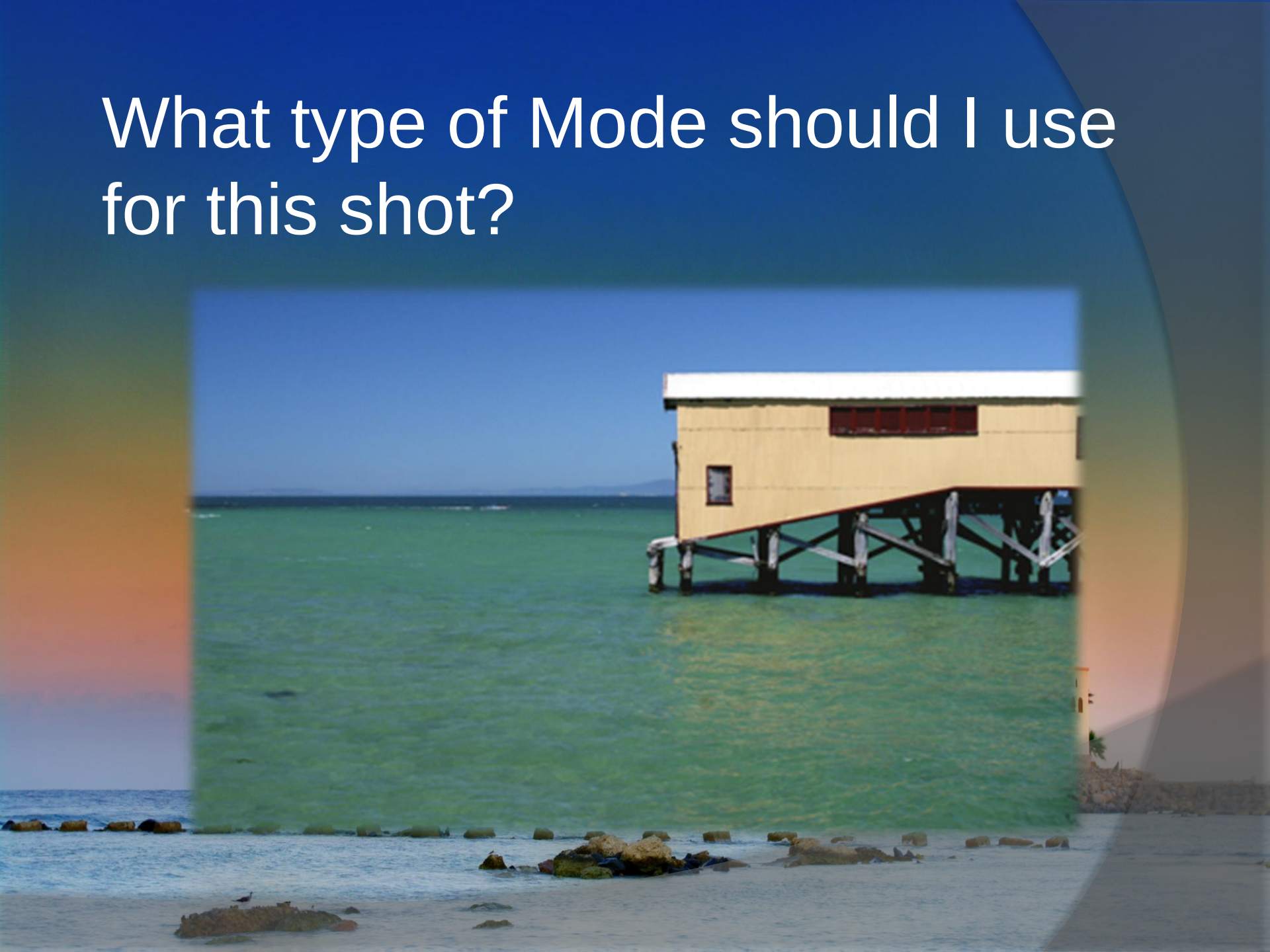

Questions / Answers