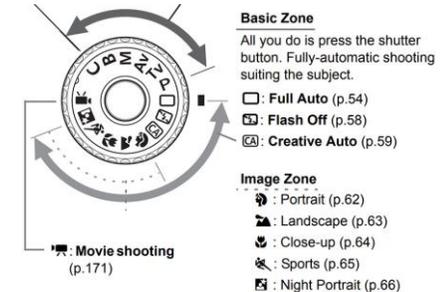# Camera and Photo Basics, Mode, Aperture, Shutter Speed, Composition

Chane Cullens – Chane@CCullens.com
VP and Honorary Member (HonNEC), New England Camera Club Council

NECCC Photo Conference Workshop
July 15, 2022

Welcome

Introductions & Your Goals

- Name

- Hometown

- Photography experience

- Goals for this workshop

Workshop Timeline – 8:30 am – 11:30 am

8:30 Welcome to Camera and Photo Basics

9:00 Landscape Photos – Focusing, Hands-On

9:45 Action Photos – Motion, Hands-On

10:30 Family Photos – Lighting, Hands-On

11:15 Next Steps

Break

Back to Basics

Abandoning complicated details to concentrate on the most essential aspects creating a solid foundation to grow from.

Let's start with a few common terms and skills.

Exposure

- Leverage the power of the camera

- No math involved

- No manual settings

Focus

- With Aperture – how much in focus

- With Speed – removing or adding blur

- With ISO – electronically adding or removing light

Composition

- Hints to make photos pleasing to the eye

- Directing your viewers to the beauty
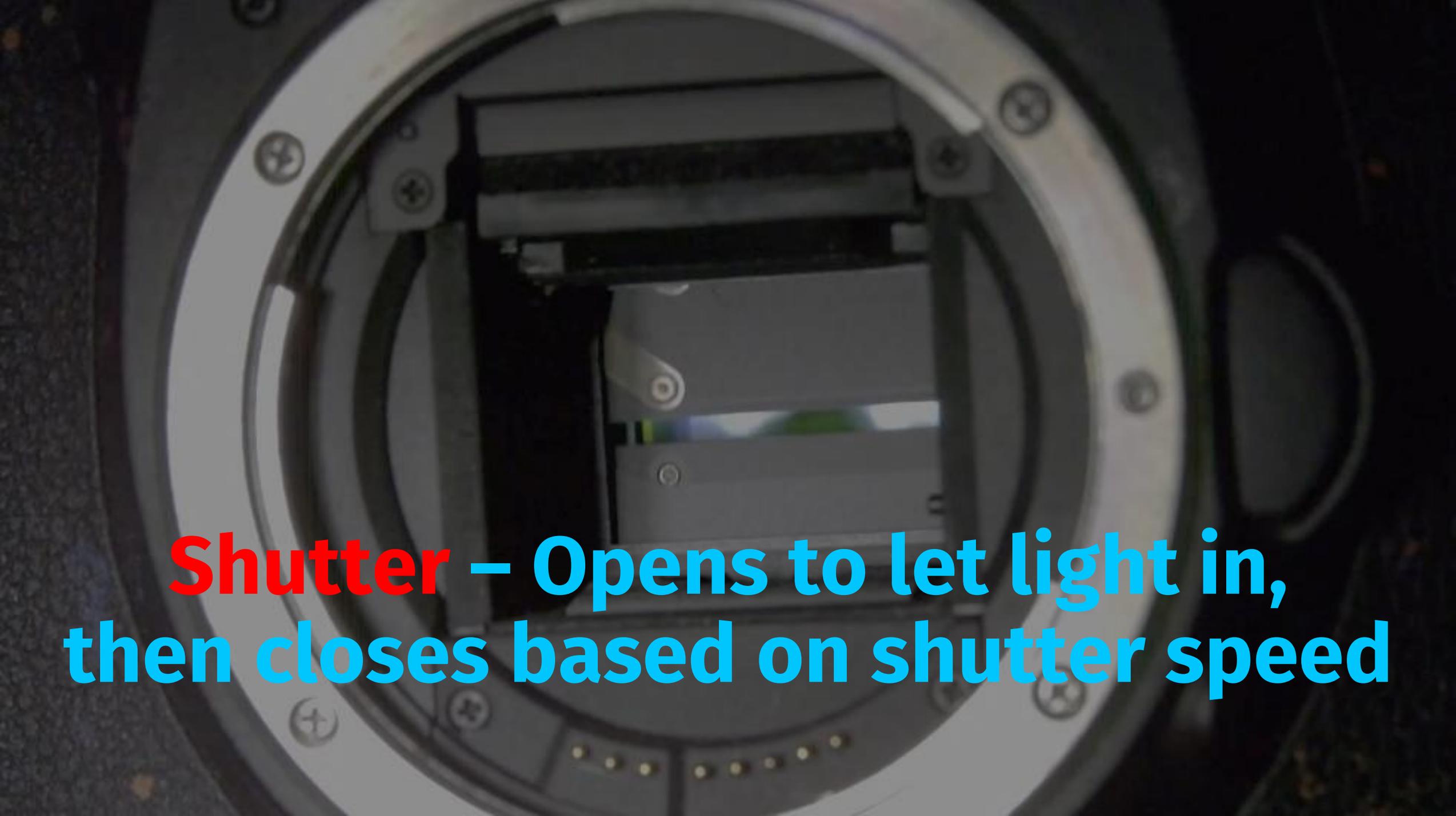
- Using empty space to show more

The Camera Manual is a Great Reference, but a Poor Learning Tool

927 pages total
65 pages on focus controls

EOS

Canon

CANON LENS RF 24-105mm F4 L IS

Advanced User Guide

Aperture - Like your pupil opens and closes, controls focus depth and light

Shutter – Opens to let light in, then closes based on shutter speed

ISO – Amplification of light
High ISO degrades photo quality
Like TV high volume, distorts sound

Example – About to Take a Photo Camera Screen
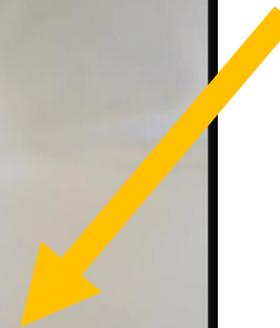
Mode →

Varies wth Every Camera

[9739] 45   29:59   OFF

ISO

Mode

ISO AUTO

Example – About to Take a Photo Camera Screen

Varies wth Every Camera

Mode

P [9739]45   29:59 🔋 OFF

ISO Mode

ISO AUTO

-3..2..1..▯..1..2.⁺3

Exposure Meter

Goal is center

Example – About to Take a Photo Camera Screen

Mode

Shutter Speed (a fraction)

Aperture (starts with F or f, and a decimal number)

ISO A whole number

Half Press More Info

[9739] 45   29:59   OFF

1/80   F2.8   ISO AUTO 800

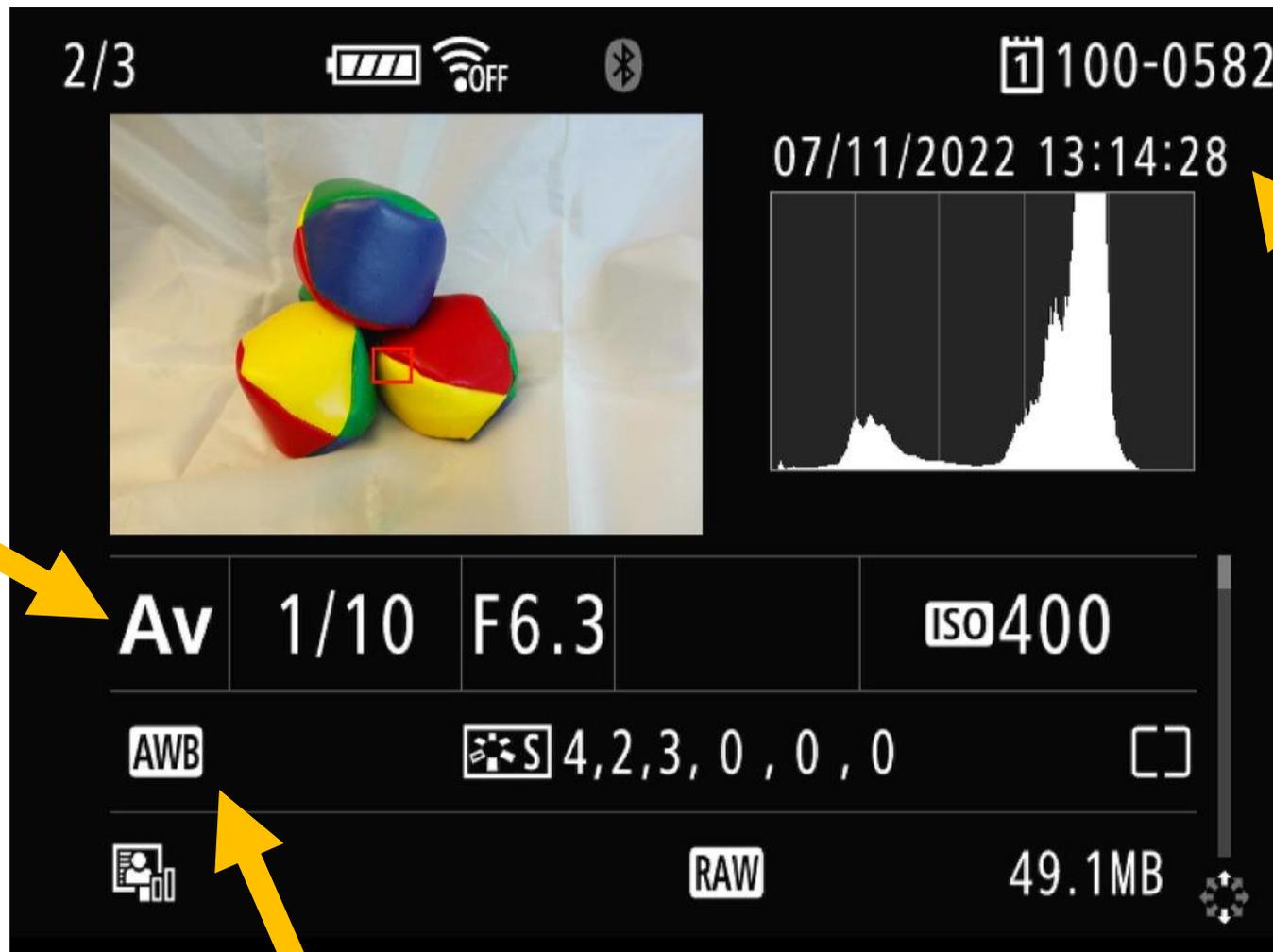# Example – Viewing Photo Results on Camera Screen
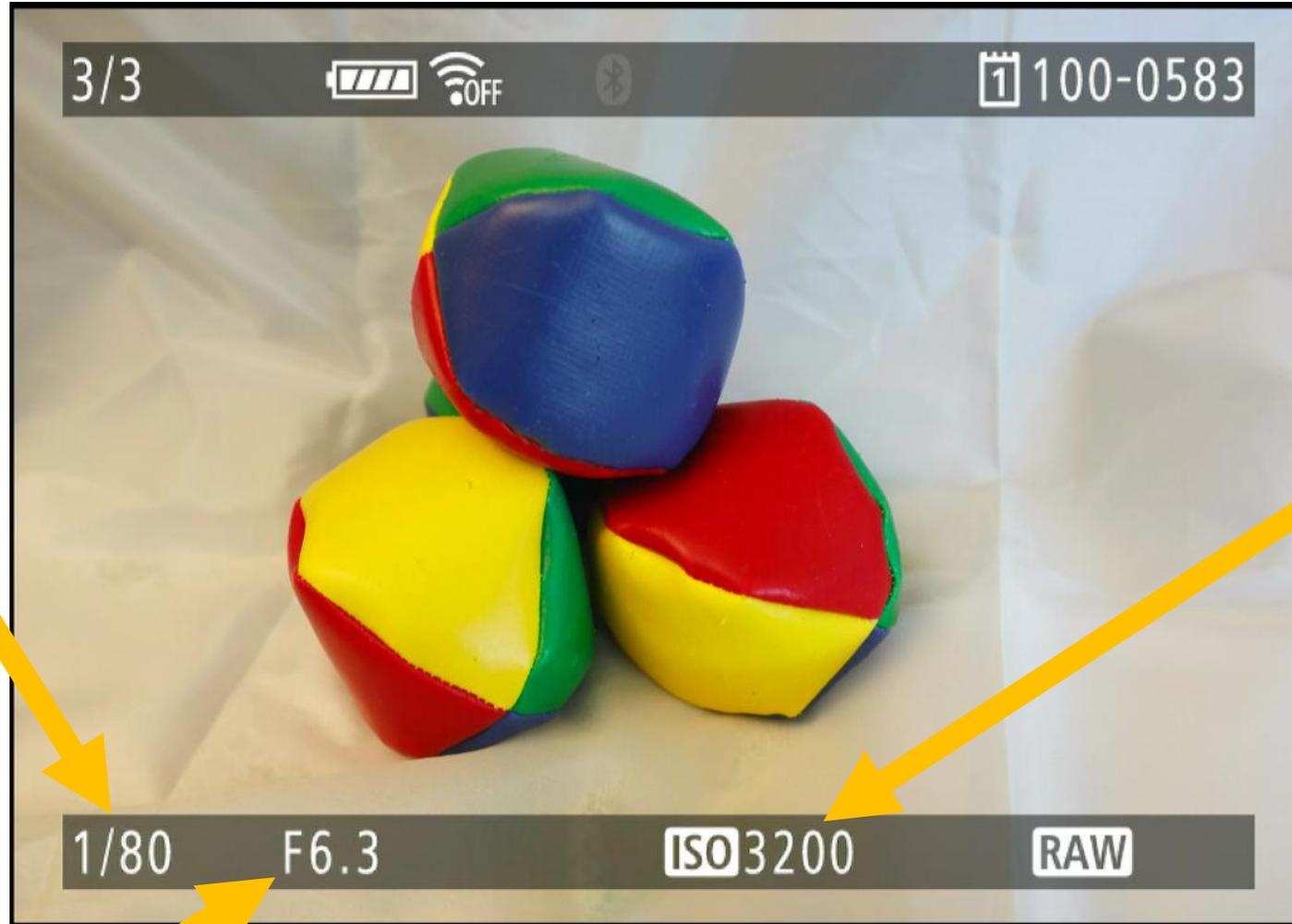
Shutter Speed (a fraction)

ISO A whole number

Aperture (starts with F or f, and a decimal number)

Tip – Photos have "Metadata" inside – Set Camera Date

**Mode
Shutter Speed
Aperture
ISO …**

Date Photo Taken

Camera settings, lens, serial numbers, copyright, …

Activity – Let's get familiar with viewing photo info

Using any setting

1. Take two photos from where you are sitting

2. One towards the window

3. One towards the hallway

Review the photos

- Often a "play" button →
- Move forward and backwards
- View Photo Info

View camera settings

Discussion

What the camera used for Aperture, Shutter Speed?

Zoom in and out

Look at the details and move around

Landscape Photos: Focusing
Choosing what should be in focus and how much should be in focus

Avoid camera shake

- Holding your camera steady

Aperture

- Controls focus depth – how much should be in focus

Focus point selection

- Where is the sharpest spot

Directing your viewers

- Using composition techniques

Action Photos: Motion
Choosing to freeze or blur the action

Shutter Speed
- Capturing motion by putting you in control of freezing or blurring

Focus Tracking
- Letting your camera change focus as the subject moves

Drive Mode
- One shot or Continuous shooting

Composition Technique
- Leaving room ahead of the motion

Family Photos: Lighting
Where lighting is often poor and eliminating distractions is key for moving from OK to good

ISO
- Controls light sensitivity to add light by changing camera settings

Lighting options
- Using metering mode, exposure compensation and altering the light sources

Perspective
- Changing your point of view to improve results

Arranging people
- Subtle changes to improve composition

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Classic Landscape Photo – Most Areas In Sharp Focus

Lighthouse - Subject

Far Rock Edge

Near Rock Edge - Foreground

f/14

Confusing Terminology

Landscape Photography

- Very broad grouping of photo types

- Mountains, Forests, Seascape, City Skylines …

Portrait Photography

- Narrow grouping of photo types

- Person, Animal, Face …

Landscape Orientation

Any photo is wider that it is tall

Portrait Orientation

Any photo is taller than it is wide

Landscape Photos: Focusing
Choosing what should be in focus and how much should be in focus

Avoid camera shake
- Holding your camera steady

Aperture
- Controls focus depth – how much should be in focus

Focus point selection
- Where is the sharpest spot

Directing your viewers
- Using composition techniques

Holding your camera steady

Steady camera **=** Better focused photos

Hands

1. Rest the lens in your left hand

2. Grip the camera body with your right hand

3. Right index finger over the shutter release

Elbows

1. Elbows tucked into your body

2. Or, rest elbows on a surface

3. Light breaths

Legs

1. A little apart so you're balanced

2. Take a knee, bringing one leg up

3. Lean against a wall or tree

4. Tripod

Hands on Activity

1. Practice many points of contact
2. **Gently squeeze shutter**

Let's get familiar with choosing an Aperture

Auto vs Choosing a Mode

Often a physical dial, may be on touch screen

Find Aperture Priority Mode

Often named "A" or "Av"

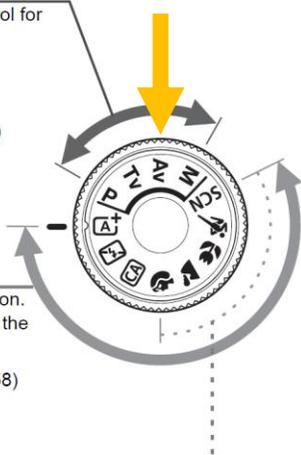**Change Aperture Number**

One or more ways

Activity - Setting the camera mode to "Aperture Priority"

Canon – "Av"

Creative Zone

These modes give you more control for shooting various subjects.

P : Program AE (p.86)
Tv : Shutter-priority AE (p.110)
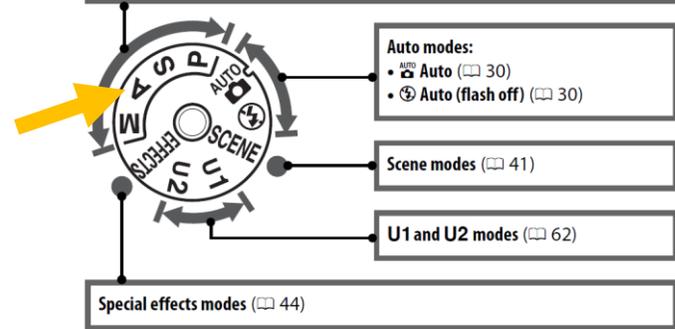Av : Aperture-priority AE (p.112)
M : Manual exposure (p.115)

Basic Zone

All you do is press the shutter button. The camera sets everything to suit the subject or scene.

A⁺ : Scene Intelligent Auto (p.58)
⚡ : Flash Off (p.63)
CA : Creative Auto (p.64)

Nikon – "A"

P, S, A, and M modes:
• P — Programmed auto (📖 52)
• S — Shutter-priority auto (📖 53)
• A — Aperture-priority auto (📖 54)
• M — Manual (📖 56)

Auto modes:
• 🅰 Auto (📖 30)
• ⚡ Auto (flash off) (📖 30)

Scene modes (📖 41)

U1 and U2 modes (📖 62)
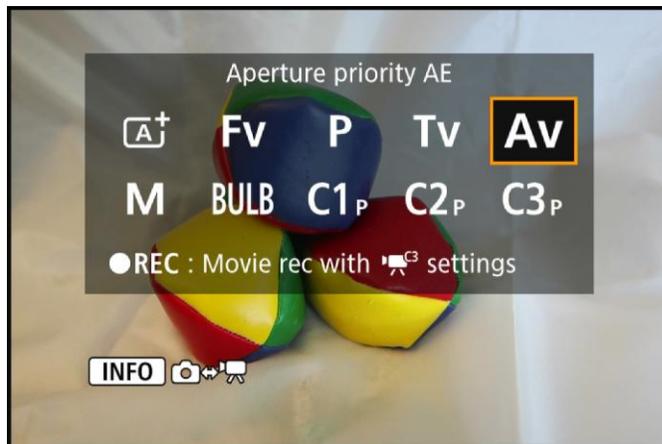
Special effects modes (📖 44)

Fujifilm – "A"

Adjust settings as follows:
① **Auto mode selector lever:** ●
② **Shutter speed:** A (auto)

Aperture: Select ⬡ and rotate the lens aperture ring to adjust aperture

Aperture priority AE

A⁺ Fv P Tv **Av**
M BULB C1ᴘ C2ᴘ C3ᴘ

●REC : Movie rec with 📹ᶜ³ settings

INFO 📷↔📹

Screen

Example – About to Take a Photo Camera Screen

Mode

Focus Point(s)

Aperture

ISO

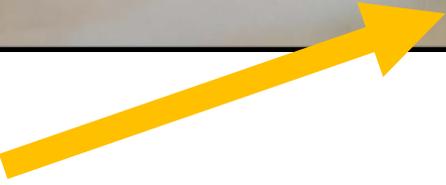Half Press More Info

Av [9739]45   29:59 🔋 ((Ⓦ))OFF

F6.3   -3..2..1..◻..1..2.⁺3   ISO AUTO
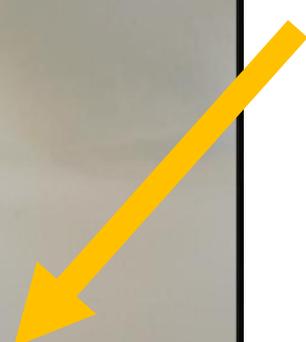
What is the Role of Aperture?
Depth of focus – how much of the scene is in focus

Larger Aperture Number == More items in focus

- Range … 2.8, 4, 5.6, … 20 …
- The lens controls the range

Rule of Thumb

- A **small** number of people or objects, a **small** Aperture number
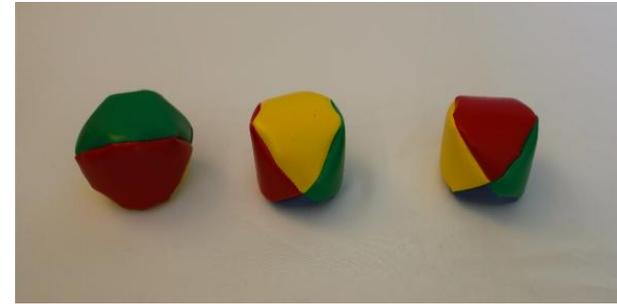- A **large** number of people or objects, a **large** Aperture number

Tradeoffs

- The larger the Aperture number the more light is required
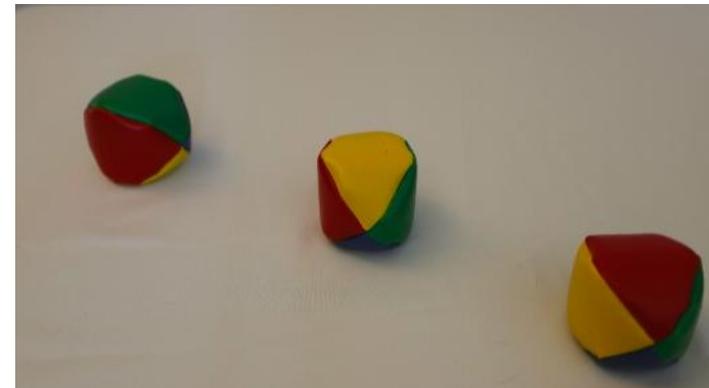
Aperture Activity

For each table arrangement photograph each setting with these apertures

1. Small number – 2 to 5 (lowest possible)

2. Medium number – 8

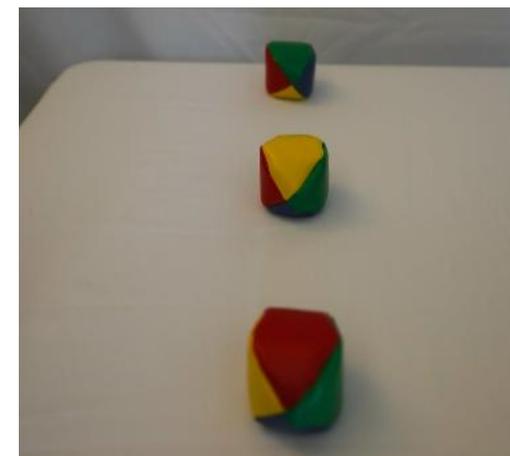3. Large number – 14 to 22 (highest possible)

Discuss Results

A. Right to Left

B. Diagonal

C. Front to Back

How to inform the Camera where to Focus

May be as easy as touching the back of the screen

Moving the focus location manually

Half-press shutter and reframe scene

Activity – Focus Point Selection

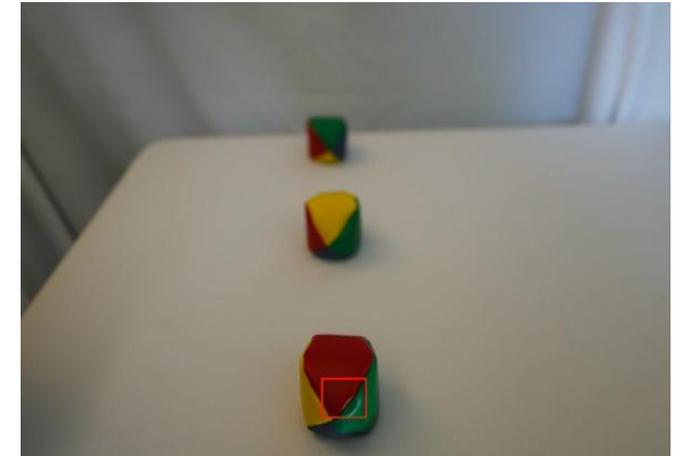On your camera – find at least 1 way to set the focus point

Center

Back

Front

Discuss Results

Directing viewers using Aperture focus techniques

Your eyes skip right past blurred areas to the sharply focused areas

What aperture creates the best focus for your photo's goal?

- It depends on your vision for the photo There is no magic aperture value
- Rule of thumb – where you want the viewers eye to stop should be in sharp focus

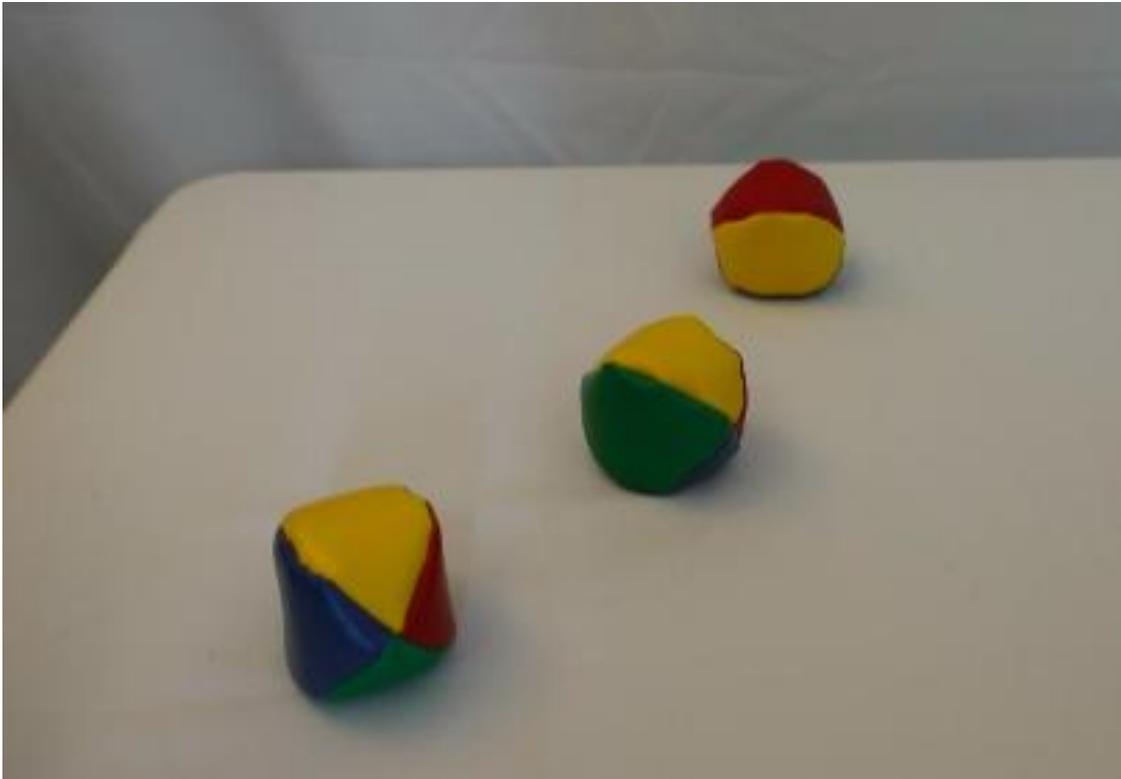**What if you want subject, foreground and background all in focus?**

- In-camera, Rule of thumb is about 1/3 past the foreground

1/500 of a second, f/5.6, ISO 800

Activity – Directing viewers with Aperture and Focus

On your camera – find at least 1 way to set the focus point

1. With a scene similar to this

2. Choose an **Aperture** and **Focus Point**

3. That directs viewers to the top right item

Discuss Results

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Action Photos: Motion
Choosing to freeze or blur the action

Shutter Speed
- Capturing motion by putting you in control of freezing or blurring

Focus Tracking
- Letting your camera change focus as the subject moves

Drive Mode
- One shot or Continuous shooting

Composition Technique
- Leaving room ahead of the motion

Let's get familiar Shutter Priority camera button

Choosing a Mode

Same as before, similar to Aperture selector

Find Shutter Priority Mode

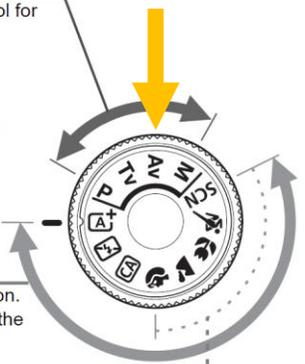Often named "S" or "Tv"

Change Shutter Speed

One or more ways

Activity – Setting the camera mode to "Aperture Priority"
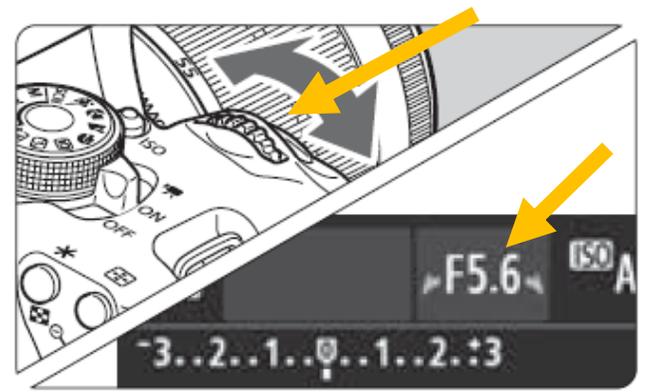
Canon – "Av"

Creative Zone

These modes give you more control for shooting various subjects.

P : Program AE (p.86)
Tv : Shutter-priority AE (p.110)
Av : Aperture-priority AE (p.112)
M : Manual exposure (p.115)

Basic Zone

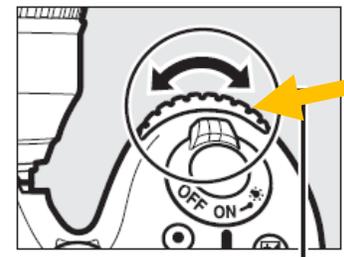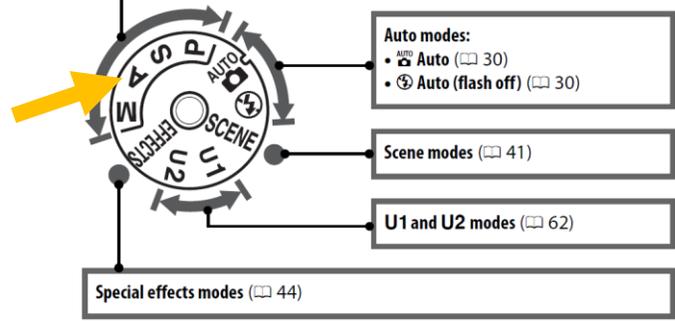All you do is press the shutter button. The camera sets everything to suit the subject or scene.

A⁺ : Scene Intelligent Auto (p.58)
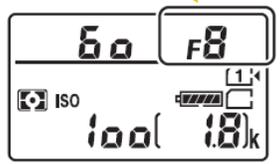**⚡** : Flash Off (p.63)
CA : Creative Auto (p.64)

F5.6

-3..2..1..◦..1..2.:3

30 16 -2.1..▼..1.2 ISO 400 9○

Nikon – "A"

P, S, A, and M modes:
• **P — Programmed auto** (□ 52)
• **S — Shutter-priority auto** (□ 53)
• **A — Aperture-priority auto** (□ 54)
• **M — Manual** (□ 56)

Auto modes:
• **AUTO Auto** (□ 30)
• **⚡ Auto (flash off)** (□ 30)

Scene modes (□ 41)

U1 and U2 modes (□ 62)

Special effects modes (□ 44)

Sub-command dial

60 F8

ISO
100 1.8k

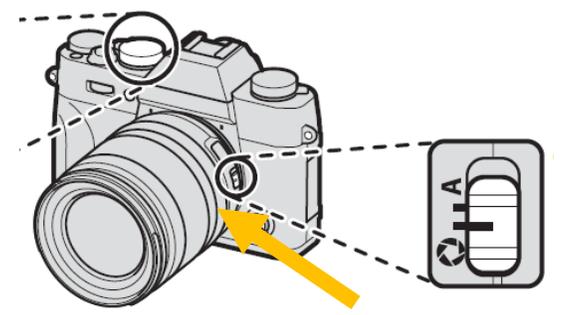1/60 F8 ISO 100 [1.8]k

Control panel

Fujifilm – "A"

Adjust settings as follows:
① **Auto mode selector lever:** ●
② **Shutter speed:** A (auto)

Aperture: Select ◇ and rotate the lens aperture ring to adjust aperture

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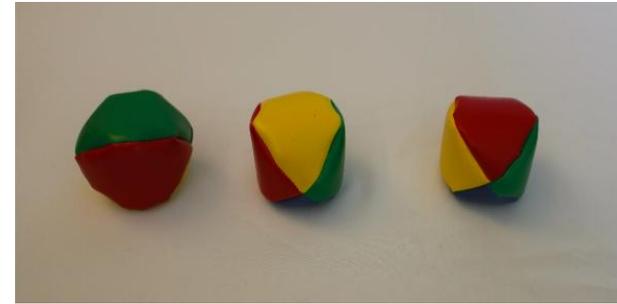
A s.s.1000 ⚡3.3 ☀+1.0 ISO 800
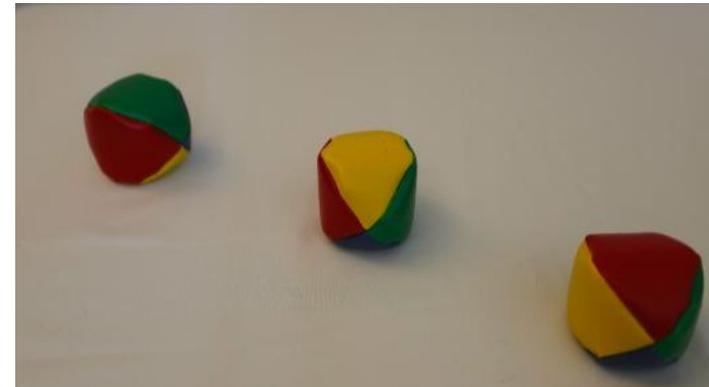
Aperture Activity

For a moving table arrangement photograph each setting with these shutter speeds

1. Small number – 1 or 2 seconds

2. Medium number – 1/60

3. Large number – 1/500

Discuss Results

A. Right to Left

B. Diagonal
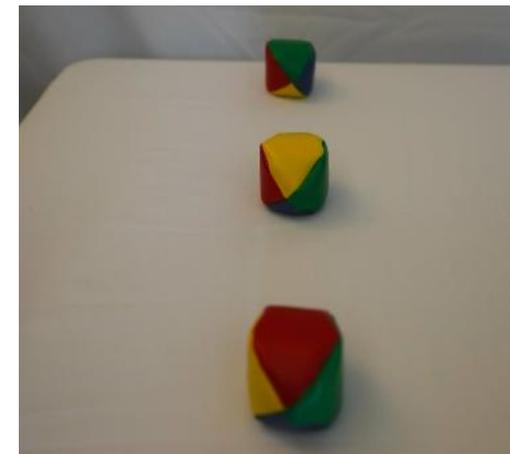
C. Front to Back

What is the Role of Shutter Speed?
Deciding to freeze or blur the action

Larger Shutter Fraction (1/2000) == Freeze a flying bird

- Range - 30 seconds … 5 seconds … 1/5 … 1/1000 of a second …
- The camera body controls the range

Rule of Thumb

- A **small** number of people or objects, a **small** Aperture number
- A **large** number of people or objects, a **large** Aperture number

Tradeoffs

- The more in focus, the more light required

Action Photos: Motion
Choosing to freeze or blur the action

Shutter Speed
- Capturing motion by putting you in control of freezing or blurring

Focus Tracking
- Letting your camera change focus as the subject moves

Drive Mode
- High-speed continuous shooting

Composition Technique
- Leaving room ahead of the motion

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Family Photos: Lighting
Where lighting is often poor and eliminating distractions is key for moving from OK to good

ISO
- Controls light sensitivity to add light by changing camera settings

Lighting options
- Using metering mode, exposure compensation and altering the light sources

Perspective
- Changing your point of view to improve results

Arranging people
- Subtle changes to improve composition

Camera Smarts: Intelligence
Using the built-in intelligent camera modes

Auto (A)

- Guarantees a great exposure, but not necessarily a great photo

Portrait

- Blurs the background to make the subject stand out

Landscape

- Everything in focus from near to far

Sports

- For a moving subject, a running person or from a moving car

Close-up

- Make small things, appear large

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Next steps - conf

Model Photos and Manual Mode

This may be the only time you need to use "Manual" mode

Some NECCC Photo Ops where light is very controlled have a sign defining the **manual** camera settings to use

Female Models is a good example

- External flashes – you mount a "trigger" on your flash "shoe"

- Light meters were used understand what camera settings to use

Use camera skills with the fundaments of composition and lighting to produce amazing results.

Next steps – practice by taking photos
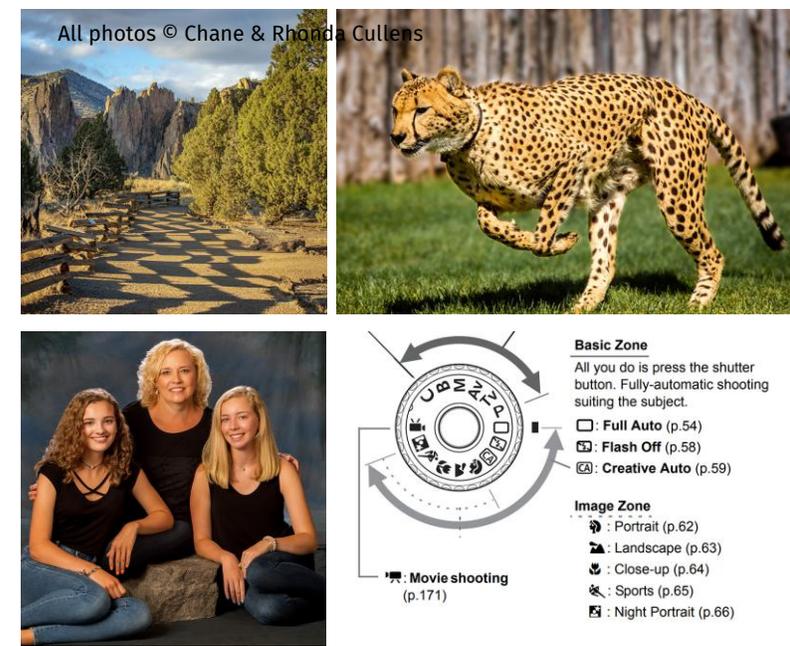
Questions?

Chane Cullens – Chane@CCullens.com

Camera and Photo Basics, Mode, Aperture, Shutter Speed, Composition

A new learning style. Often, "basics" workshops focus on the camera buttons and not the goal of capturing better photos. Instead, this workshop focuses on capturing better photos in everyday situations.

Agenda

➢ Landscape Photos: Focusing. Choosing what should be in focus and how much should be in focus

➢ Action Photos: Motion. Deciding to freeze or blur the action

➢ Family Photos: Lighting. Where lighting is often poor and eliminating distractions in your photo is key for moving the result from OK to great

➢ Camera Smarts: Intelligence. Using the built-in intelligent camera modes

Chane Cullens – Chane@CCullens.com

Basic Zone
All you do is press the shutter button. Fully-automatic shooting suiting the subject.
☐ : **Full Auto** (p.54)
🚫 : **Flash Off** (p.58)
CA : **Creative Auto** (p.59)

Image Zone
👤 : Portrait (p.62)
🏔 : Landscape (p.63)
🌷 : Close-up (p.64)
🏃 : Sports (p.65)
🌃 : Night Portrait (p.66)
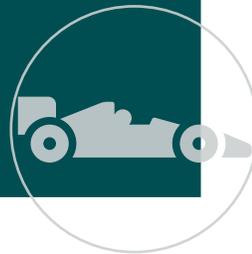
📹 : Movie shooting (p.171)

Agenda

- Choosing how much should be in focus
- Aperture

Landscape Photos: Focusing

- Deciding to freeze or blur the action
- Shutter Speed

Action Photos: Motion

- Where lighting is often poor
- ISO

Family Photos: Lighting

Camera Smarts (aka Modes) – Using the built-in intelligent camera modes

It's All About Light

- Think about what you are need to accomplish
  - How much in focus?
  - Freeze of blur motion?
  - Available light?
  - These define the camera settings to use

- Leverage the very smart computer inside every camera!

Aperture

Focus depth

Goal

Light Exposure
- 3. .2. .1. 0 .1. .2. .3 +

Motion blur

Shutter Speed

Noise

ISO