

MAKRO FOTOS

*Werkswinkel aangeboden by
AFO in 2016*

Deur Willem Semmelink



Inleiding

Ek dra hierdie weergawe op aan wyle Madelene Kruger wat haar huis vir ons AFO makro opleiding beskikbaar gestel het. Haar entoesiasme het ons almal inspireer. Sy het my gevra vir 'n dokument soos hierdie, en ek het met nagraadse studies, afleggings by ons kantoor, en ander krisisse tuis net nie tyd gehad om meer by AFO betrokke te wees of die dokument af te rond nie. Dit is steeds nie in 'n formaat wat my tevrede stel nie, maar die lewe is te kort om alles te probeer perfek maak, en ek bied hierdie weergawe aan soos dit is.

Hierdie is die skyfies wat aangebied was by Madelene se huis in 2016. Die teks is in Engels omrede ek in 2015 by enkele ander klubs beoordeel het en daar ook oor makro gepraat het.

Nie al die foto's in die aanbieding is my eie nie. Moet asb nie die notas buite AFO versprei nie – die bedoeling is om mettertyd alles my eie werk te maak. Die meeste skyfies dui nou wel die outeur aan.

(foto: <http://www.mir.com.my/rb/photography/hardwares/classics/nikonf3ver2/macro/index.htm>)



Ek was in die laat 1970's vroeë 1980's op hoërskool en 'n brosjure wat die Nikon F3 met makro toerusting illustreer het, het die Nikon sisteem in my persepsie gevestig as die makro sisteem van voorkeur. Die ou F3 kon toegerus word met 'n magdom bykomstighede.

Die lewe is 'n oester en elkeen van ons krap maar ons eie jeuk. In my geval kon ek destyds nie my fotografie belangstelling bekostig nie. Ons het gebou en 'n gesin begin en geld was skraps. Toe ek in 2005 uiteindelik die stap neem, het ek met die F3 in gedagte en met die misverstand dat makro goedkoper as wildlewe lense is, 'n D200 gekoop. Makro kán goedkoop wees, maar ek het mettertyd meer as 'n telefoto lens se geld aan makro bestee. Dit kan vrek duur raak.

Verder was Nikon teen 2005 agter by Canon en ek moes met die D200 'n ou 1970's styl volg waar die lensopening in baie gevalle nie aan die kamera gekoppel was nie, terwyl die Canon se elektroniese lensopening allerei vernuftige opsies moontlik gemaak het, en sout in die Nikon woude gevryf het met die MP-E65 lens wat steeds nie gelyke het nie. Hierdie werkwinkel is in 'n sekere sin 'n refleksie van my eie oester-krap om opsies vir die Nikon te ondersoek wat my "Canon envy" kon aanspreek. As ek dit ooit sou oor doen, sal ek minder toerusting en meer makro fotografie wys.

Rondom 2012 verander die kamera omgewing weer toe die Micro Four Thirds sisteem op die mark kom. Skielik is makro byna mik-en-druk maklik. Baie van my Nikon toerusting pas daarop en ek het in hierdie notas enkele voorbeelde van my Panasonic en Olympus kameras ingesluit.

Die laaste twee jaar het het makro weer verander, en dit is nie in hierdie notas ingesluit nie. Die Chinese firma Laowa maak baie aantreklike lense. Fotografie met mikroskoop lense raak meer toeganklik as voorheen. Enkele maande gelede kom die nuwe Nikon Z en Canon R stelsels uit wat baie potensiaal toon.

Verskoon asb die fotos se gehalte. Die kwaliteit was verlaag om die PDF dokument klein te hou vir die web.

Willem Semmelink, November 2018.

Contents:

- * Definition of Macro
- * Basic principles
- * Equipment
- * Getting started (macro photos in a studio)
- * Outdoor macro
- * ... time left ?



What is macro photography?



"something beginners want to do, and advanced photographers find difficult"

Notas:

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Is this macro photography?

Close-up photography

General terms that are used:

- * Close-up photo's (like this)
- * Macro photo's
- * Photomicrography

Photo: Willem Semmelink 2012
Panasonic GX1, Panasonic 14-42mm kit lens



Is this macro photography?

Close-up in context

Photo: Willem Semmelink 2013
Panasonic GX1, Olympus 9-18



Notas:

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Is this macro photography?

Very close-up to Macro
Depends on your macro def
Fits in PSSA size definition

PSSA Handbook 2002:
* Close-up photography:
1:10 - 1:4

* Macro (PSSA2010):
Starts at 1/4 life-size
No limit on upper end

* Photomicrography
Microscopes

Many salons define macro
also as live insects, or they
word it such as to exclude
studio macro shots.

Photo: Willem Semmelink 2013
Panasonic GF1, Olympus 9-18



Is this macro photography?

Macro photography

Some people define
macro as
1:1 and beyond.
This will then barely fit, if at all

We will use the PSSA
definition, starting
at 1:4.

This is however a studio shot and
will not be acceptable according to
most current salon rules.

It is good however for other
purposes beyond club photography

Photo: Willem Semmelink 2011
Nikon D200, 105mm AI5



Notas:

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Is this macro photography?

Extreme macro photography

At about 2x - 3x magnification it becomes almost impossible to hand-hold, and outdoor shooting from a tripod is also no longer accurate enough to focus the subject - studio becomes essential.

Working definition of macro photography:
"showing detail to your viewer that is difficult to see with the naked eye"

Photo: Willem Semmelink 2011
Nikon D200 + Nikkor 105mm AT5 plus ext tubes



Is this macro photography?

Photomacrography

* Usually dead insects, pinned down for stacking
Dead insects not allowed in Nature category

* Photo stacking required
Photo like this usually composed of 40-200 stacked images
PSSA accepts stacking, but studio shots may NOT be entered in NATURE category.

* Specialised lighting, and camera support required
i.e. requires a studio setup



Photo: Nicholas Rensen 2011

Notas:

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Photo: Willem Semmelink 2015
Olympus OM-D-EM1 60mm 2.8 + F1.500R

Notas:

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Contents:

* Definition of Macro

* Basic principles

- * How we manage to focus so close
- * What is magnification?
- * Working distance
- * Depth of field
- * Diffraction
- * Stacking

* Equipment

* Getting started (studio)

* Outdoor macro



Basic Principles

* How we manage to focus so close

1. Optical solution:
change the glass
2. Mechanical solution:
extend distance between camera+lens



Notas:

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Basic Principles

* How we manage to focus so close

Optical solution: dedicated macro lens (right) vs a standard lens (left)
 Alternatives: filters, reversed lens



Mechanically, a lens extends (externally or internally) to focus. - compare lenses on left (infinity) with lenses on right (closest focus).

Macro lens (right) extends further than standard lens (left).

Alternative extension: Extension tubes, Bellows

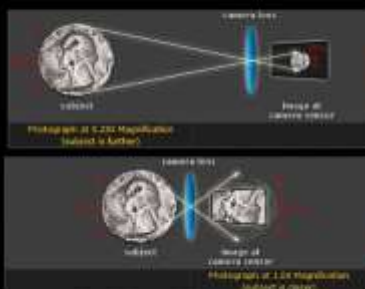


Basic Principles

* What is magnification?

Magnification is the ratio between the physical size of the image on the sensor and the size of the photographed object.

Controlled by focal length and focus distance



Source: CambridgeinColor

This tells you what equipment is best suited for the situation.



Magnification itself is not dependent on sensor size. How much will fit in, however depends on the sensor size.

When it is known how much fits on the sensor, you can plan which equipment to use for the subject:
 1:4 can still be reached with many kit lenses.
 1:1 requires special macro lens, extension tubes or equivalent
 2x, 3x, 4x, 5x require increasingly more extension, or stronger lens.

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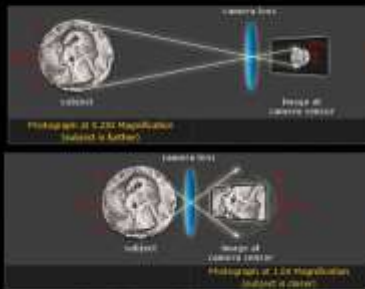
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This tells you what equipment is best suited for the situation.

Magnification
Size of image on sensor vs real size

Magnification = $\frac{\text{Size on sensor}}{\text{Object size}}$
 $= \frac{24\text{mm}}{100\text{mm}}$
 $= 0.24\text{X (fraction)}$
 or 1:4 (as ratio)

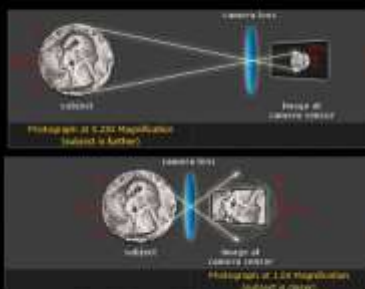
It tells me I can use my kit less and there will be some depth of field at this magnification

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Source: CambridgeinColor

This tells you what equipment is best suited for the situation.

Magnification
Size of image on sensor vs real size

Magnification = $\frac{\text{Size on sensor}}{\text{Object size}}$
 $= \frac{24\text{mm}}{24\text{mm}}$
 $= 1\text{X (fraction)}$
 or 1:1 (as ratio)

It tells me I will work at the limit of what even a macro lens can do without adapters. Depth of field will be a serious problem. For many people, macro starts here....

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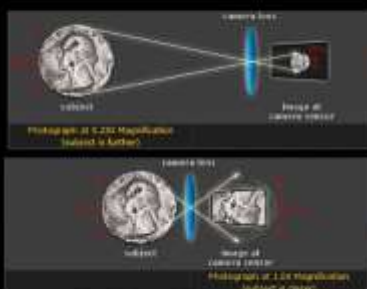
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Basic Principles

* What is magnification?

Magnification is the ratio between the physical size of the image on the sensor and the size of the photographed object.

Controlled by focal length and focus distance



1:4, or 0.25x

1:1, or 1x

Source: CambridgeinColor

This tells you what equipment is best suited for the situation.

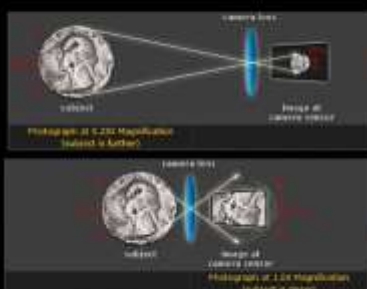


Basic Principles

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1:4, or 0.25x

1:1, or 1x

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Basic Principles

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Source: CambridgeinColor

1:4, or 0.25x

1:1, or 1x

This tells you what equipment is best suited for the situation.

	1/8x	1/4x	1/2x	1x	2x	4x	8x	11x
Lens alleen	50mm f/1.8			50mm omgekeerd				
Lens plus Filter	50mm f/1.8 + Filter							
Lens plus Verlengbuis								
Lens plus Bellows								
Gestapelde lenze								

Makro Lens
 Makro Lens + 2 element vergrotingslens
 50mm f/1.8 + verlengsbuis
 50mm Makro Lens + verlengsbuis
 105mm Makro Lens + verlengsbuis
 200mm Makro Lens + verlengsbuis
 40mm Makro Lens + Bellows
 105mm Makro Lens + Bellows
 50mm (omgekeerd) + Bellows
 35mm (omgekeerd) + Bellows
 200mm (omgekeerd) + Bellows
 200mm + omgekeerde 50mm lens
 105mm makro + omgekeerde 50mm lens
 200mm + omgekeerde 35mm lens
 105mm makro + omgekeerde 35mm lens

Ware tektonische Makro Lens + Bellows
 Ware tektonische Makro Lens + Bellows

Die tabel is bare generies om relatieve verhoudings te wys. Presiese syfers sal van produk tot produk verskil. Vergrotings word bereken met lenze op oneindig gestel, maar resultate kan verskil as die lensfokus gestel word.

Basic Principles

* Working distance

The trick is not to get as close as possible. Too close scares insects, scratch your lens, and make it hard to fit a flash.

The art lies in keeping a comfortable distance



Photos: Annette Semmelink

Notas:

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Basic Principles

* Working distance

The trick is not to get as close as possible. Too close scares insects, scratch your lens, and make it hard to fit a flash.

The art lies in keeping a comfortable distance

Magnification is usually shown on a mirror lens.

1:1 Magnification on this lens gives you a working distance of 10cm or 4.0 in. from the sensor. This includes the camera thickness and the length of the lens! So you have about 8-9 cm space between front of the lens and the subject. Note the flares, but you'll need for a tripod!

Magnification



The sensor side shows for a 105mm lens a 10cm working distance.

1:1 magnification, the lens focuses 200mm (including the sensor thickness and lens length) so in the image above by being on a tripod!

Basic Principles

* Depth of field

As magnification increases, depth of field decreases to the extent that you cannot fit everything in a single shot.

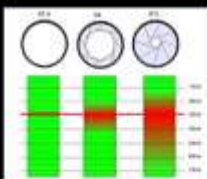


Photo: Willem Semmelink 2012
Nikon D200, 105mm lens.



Mosquito on zipper. f/16
note only one tooth is sharp

Notas:

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Basic Principles
*** Depth of field**

Actually we do not want to shoot at F16 and F22 as it complicates managing the background

Even if background is at a distance, f16 can create too much detail

Photo: Willem Semmelink 2013
Panasonic GX1, Olympus 60mm 2.8

Notas:

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Basic Principles

* Depth of field

Overcoming the limits:

1. Stacking
2. Cropping (the bee image on the right)
3. Selective focusing (ant below)

DOF = $2CN(1+m) / (m^2)$; C=0.019 (1.6 crop)

Magnification (m)	DOF Scale	DOF (mm)					
		N:4	5.6	8	11	16	
2.00X		0.11	0.16	0.23	0.31	0.46	
1.50X		0.17	0.24	0.34	0.46	0.68	
1.00X		0.30	0.43	0.61	0.84	1.22	
0.75X		0.47	0.66	0.95	1.3	1.89	
0.50X		0.91	1.28	1.82	2.51	3.65	
0.33X		1.86	2.56	3.65	5.02	7.31	
0.25X		3.04	4.26	6.08	8.36	12.2	
0.20X		4.56	6.38	9.12	12.5	18.2	
0.15X		7.77	10.9	15.5	21.4	31.1	



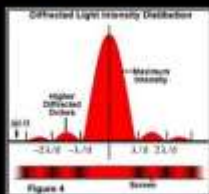
Photo: Willem Semmelink
Olympus OMD-EM1, 60mm 2.8

In macro, the focus point must be exact. Resorting to stopping down to compensate for sloppy focus is the equivalent of crossing your fingers and hoping it comes out. The correct way to ensure a sharp image is to pay attention to precise focus. (Detrick: Macro photography, p.70)

Basic Principles

* Diffraction

Another reason shooting a macro shot above f/11 is not ideal



...st performance of
Insofar as the strings
Fifth Symphony look
late 18th century. Yet
their normal bass-line
melodic role – espec

f/2.8 f/4 f/5.6 f/8 f/11 f/16 f/22 f/27 f/32

Notas:

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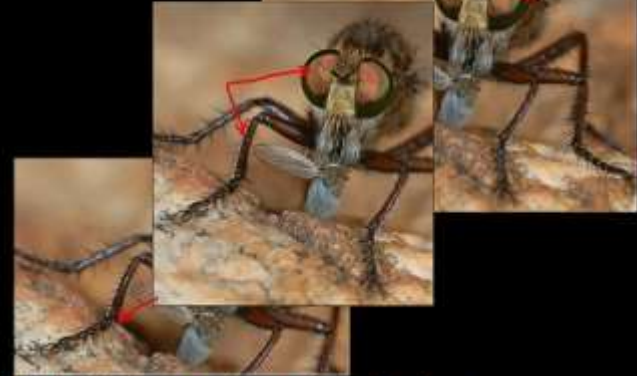
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Basic Principles

* Photo stacking



Photo: Willem Semmelink 2010
Nikon D200 + 105mm lens, 3-image stack



Think of the image as layers of vertical planes.
Gradually move the camera closer and closer at fixed distances
Keep background out of focus

Stacking is primarily for stationary subjects
Tripod and focus rail recommended

Basic Principles

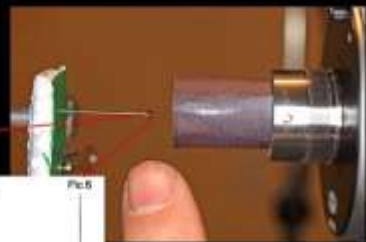
* Photo stacking

Stacking requires precise movement of the camera between shots.

A manual or computer-controlled rail is required.

Hand-held stacking is possible with about 3-4 stacks over 20mm. Put on continuous shoot, and press shutter as you move

Studio controlled stacks comprise 40-200 stacks with absolute precision over 1-2mm



Kirk manual slide stop for 1mm-sized stops

Computer-controlled motorised rail



Notas:

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Basic Principles

* Photo stacking

The final image is composed by importing all the photos into stacking software.

The software generates a TIFF or JPEG image from the in-focus parts of the individual photos

Software:

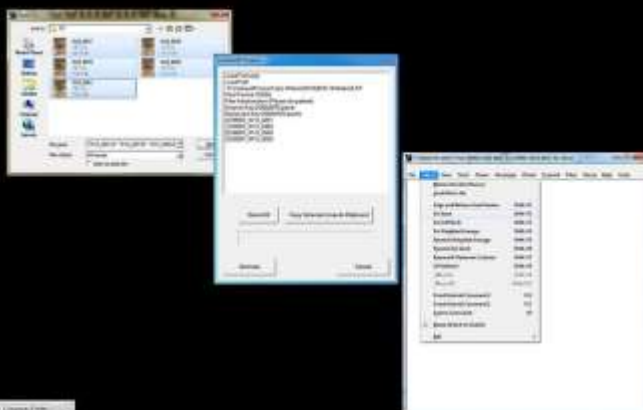
Zerene stacker (industry standard)

Combine ZP

Photoshop CS4 - Layers has a stacking option

(can be done manually with layer masks) →

Hugin + Enfuse (Open source software)



Contents:

* Definition of Macro

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* Getting started (macro photos in a studio)

* Outdoor macro

* ... time left ?



Notas:

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Contents:

- * Definition of Macro
- * Basic principles
- * **Equipment**
 - * What should I buy?
 - * Lenses, extension, filters, etc
 - * Flash and lighting
 - * Tripods and support
 - * A macro studio
- * Getting started (studio)
- * Outdoor macro



Photo: author unknown

Gear is good. Vision is even better
(David du Chemin, Within the frame, p. 38)

Good technique is far more important than anything else. The best equipment used sloppily won't produce pictures that are as good as those taken with mediocre equipment used precisely
(John Shaw p.30)

To get pro results sometimes you have to use (and that means buy) what the pros use
(Scott Kelby vol1, p.3)

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Photo: Outdoor Photo

Notas:

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What should I buy?



Add to Cart

1. Start with your own goals:
How serious are you? Hobby/pro?
What do you want to photograph?
2. Flexibility. Preference for equipment that can be used in other types of photography too.
Ease of moving to/from high magnification
Extension tubes and normal lens vs macro lens
Normal flash vs macro flash
3. Magnification
Smallest subjects can require quite specialised equipment
4. Cost
Is the cost justified for your needs?
5. Convenience
Electronic contacts in lens, portability, weight
6. Ultimate
The ultimate lies in skill and light, not 'precious' equipment



Budget travel/starter kit:
Camera with kit lens
Extension Tube(s) with electrical contacts
Plastic diffuser with hole for lens



Nice hobby/travel/starter kit: Raynox 818r



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Photo: Willem Semmelink



Notas:

Why not crop?

Cropping a normal photo



Cropping a macro photo



Photos:
Willem Semmelink, 2019
Nikon D800e, 200mm micro



Cell Phone



Photos: Willem Semmelink,
Nokia 920 cell phone



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Closeup/Macro Filters



Benefits: Cost (except 2-element filters)
Size/weight
Dont have to detach lens
(can use in dusty environment)

Drawbacks: Image quality
Magnification (check strength)

Use for:
Travel,
Outdoors work
Compact cameras

Close-up filters
Moth taken with 3 close-up filters + 50mm lens

Moth + 3 filters: about 0.4X

2-element filters are of high quality
Canon 250D: 52mm thread / Canon 500D: 47mm thread
Combine well with 70-200 or 300 f/4 lenses

Photos: Willem Semmelink

Extension tubes



Photo: W Semmelink
Nikon D800, 25mm tube, 50mm 1.2
Kirk rail and diffused flash

Notas:

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Extension tubes



Benefits: Cost
Size/weight
Image quality

Drawbacks: Light loss
Zoom lenses
Inconvenience



Photo: W. Semmelink
Nikon D6000 camera, tube, 50mm 1.8
soft fill and diffused flash

Extension tubes



Benefits: Cost
Size/weight
Image quality

Drawbacks: Light loss
Zoom lenses
Inconvenience

Telephoto and extension Tubes

300 1/4, 200 1/2.8, 10-200 1/2.8 etc...

Advantages:
Working distance (lattice, insects)
Clean background
Compressed perspective, see flower image

Also try 500mm and 600mm with ext tubes or converters
Use a firm tripod and a remote shutter release and mirror lockup

Snakes, Snakes, Damselflies
Usable close-up shots, not macro



Close-up with telephoto lens



Macro

Images: Tamya Puzari



Image: Tony Sweet: 300 1/4 shot wide open at 1/4



Lens images from suppliers



Notas:

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Extension tubes maths



Photo: Willem Semmelink, 2014 - Nikon 70-180 micra + tubes

Technical information on Extension Tubes

Magnification = $\frac{\text{Extension tube distance in mm}}{\text{focal length of lens}}$

Magnification:

E.g. 50 mm lens
50 mm extension = 1 X
200 mm lens
50 mm extension = 0.25 X

In general the greater the extension the greater the magnification, however longer focal length lenses will produce less magnification with the same amount of extension.

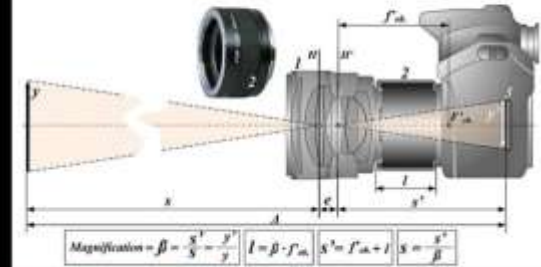


Diagram: Robert Berdan, 2012, courtesy Wikipedia

Variable extension tubes



Left: Variable tube, diameter too small, vignettes
Right: normal tube, larger diameter

Photo: Willem Semmelink, 2016 - Nikon 105mm 2.8 VR + variable tube

Benefits:
No need to keep changing tubes as you want to get closer/further.
Nikon aperture lever and electronic contacts supported

Drawbacks:
Play in the focus barrel: slight instability compared to fixed tubes.

Hole in centre of tube too small for full frame - due to helicoid
Vignette in 35mm sensor. May be OK for APSC size.



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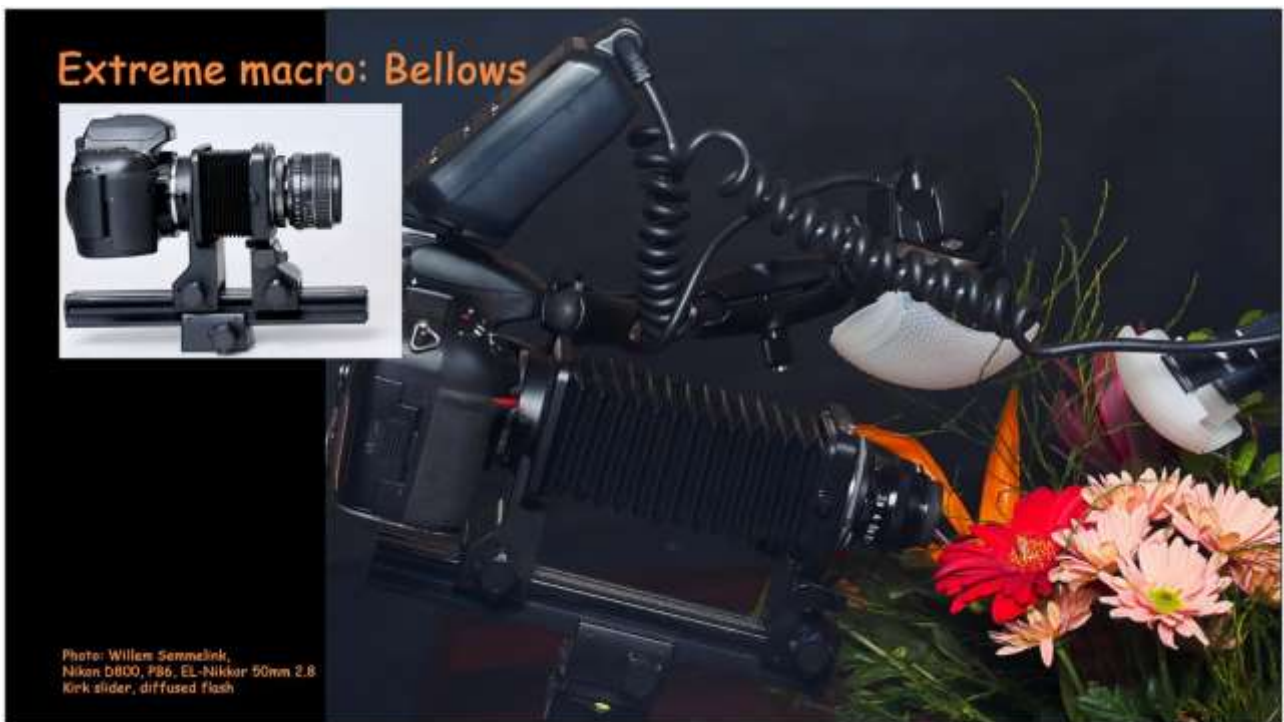
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Ja, dis'n Canon flits op die Nikon. Ek verkies die kabels bo Nikon se infra-rooi seine.

Notas:

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Extreme macro: Bellows



Benefits:
quality
magnification

Drawback
Inconvenient
Clumsy

Use for:
extreme macro



Photo: Willem Semmelink, Nikon D800/P86, EL-Nikkor 50mm/1:1.4, Kirk slider, diffused flash

Extreme Macro: Bellows



Benefits:
quality
magnification

Drawback
Inconvenient
Clumsy

Use for:
extreme macro

Extension: Drawbacks

1X Magnification or 1:1 - 105mm Macro lens with no exten	2X Magnification or 2:1 50mm lens + 100mm ext	3X Magnification 200mm extension
3X Magnification or 3:1 50mm lens + 150mm ext	4X Magnification 250mm extension	5X Magnification 250mm extension
5X Magnification 250mm extension	6X Magnification 450mm extension	7X Magnification 250mm extension
8X Magnification 450mm extension	Impractical and it stops light loss Improves using reversed lenses	



Photo: Willem Semmelink, Nikon D800/P86, EL-Nikkor 50mm/1.4, Kirk slider, diffused flash

Notas:

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Extreme macro: Enlarger lenses

* Better macro lenses on bellows than normal camera lenses:

- Designed for close distances
- Not flare resistant
- Flat field design

* Small size (lights)

* Manual aperture

Brand names:
EL-Nikkor,
Schneider
Rodenstock

39mm Leica thread
adapter required



Photos: Bjørn Rorslet (above)
Unknown (left),
Nikon brochure (below)

Nikon EL Nikkor 50mm 1/2.8 N Enlarging Lens



Extreme Macro: Canon MP-E 65 lens



Photo: Dalantech Canon 1D Mark III (F14, 1/250, ISO 200) + a Canon MPE-65mm macro lens (~ 2x and 3x) + MT-24EX.



Photo: Dalantech 1D Mark III (F16, 1/250, ISO 800) MP-E 65 and MT-24 1x magnification

Benefits:

Magnification:

1x - 5x

No bellows / stack / tubes
i.e. aperture control!!

Drawbacks:

Viewfinder goes darker from 1x-5x
(f/2.8 = effective f/16 at 5x)

DOF = 0.05mm (1/20 mm) at 5x

Illumination is critical - MT24

Many focus rails too coarse:

at 5x forget hand-holding.

Requires skill and experience

EF Mount

MP-E65mm f2.8 1-5X Macro Photo

MICRO / CLOSE-UP .jpg



Notas:

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Extreme macro photography:

- * Focus rail is critical,
- * Lighting the subject gets complex as there is too little space between lens and subject
- * Focus stacking almost essential



Canon MP-E 65 with MT-24 flash and bubble-plastic used to diffuse and soften the flash

Photos: Vida van der Walt

MP-e 65 lens with tabletop setup

- * Focus rail bolted to granite base,
 - * Diffused lighting - LED lights
 - * Holder for subject: no live insects
- Thus studio work only

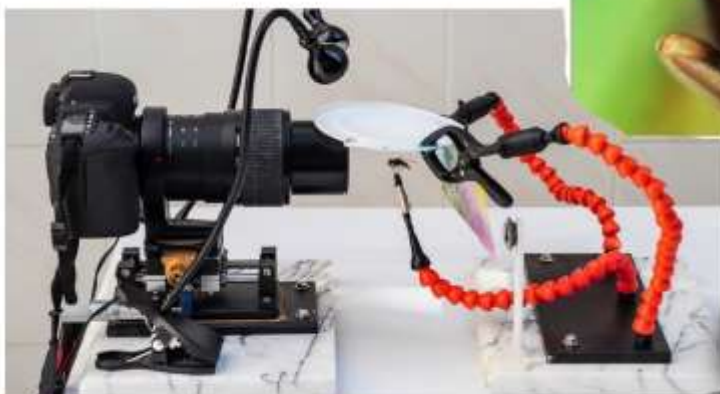


Photo: <https://www.flickr.com/photos/can-2782688000/5/>album-72157644746794855/

Drone Fly

Note: 89 shots focus stacking
<http://www.fredmiranda.com/forum/topic/1437985>

Photos by Can Tunçer

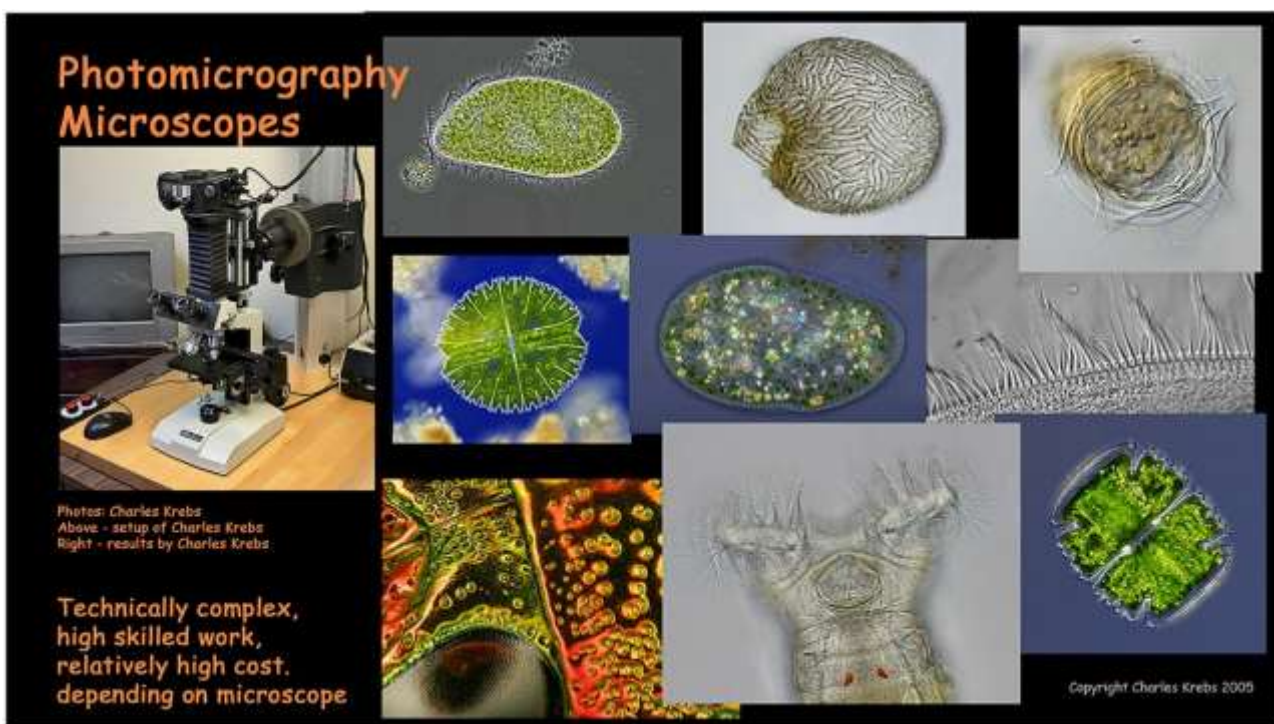
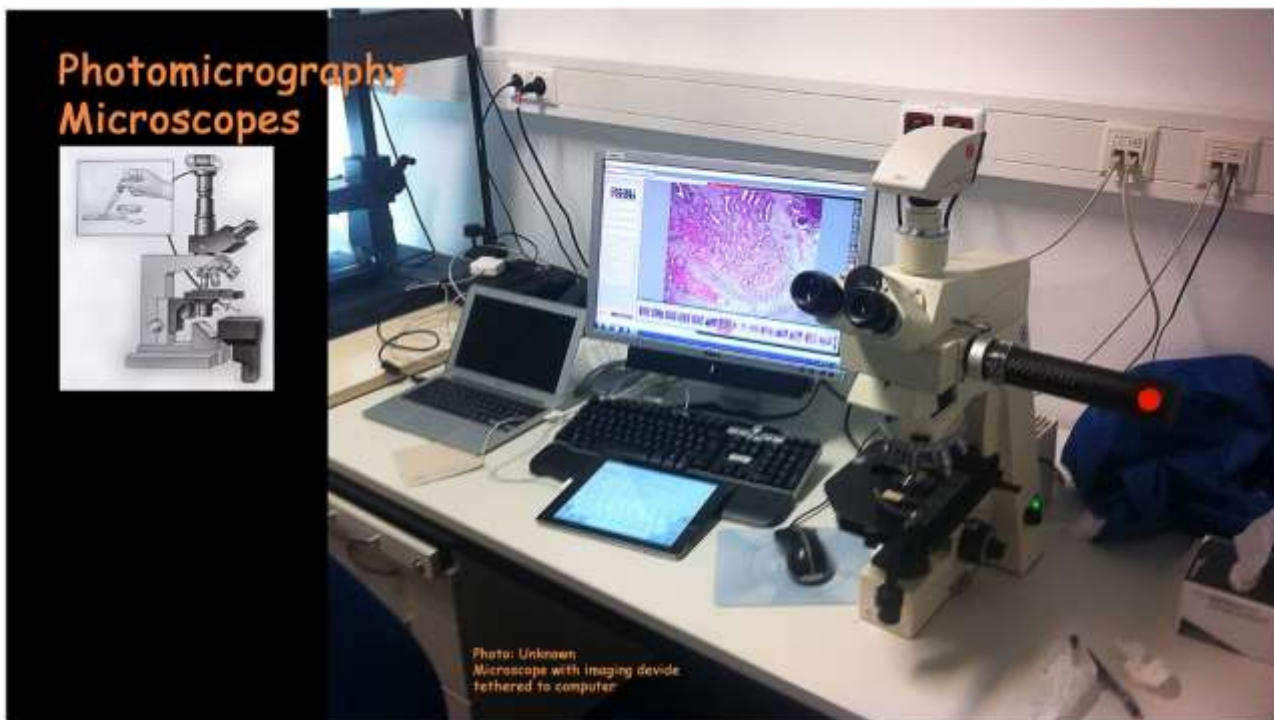
Notas:

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Alternatiewe opstelling: gebruik 'n "transfer lens" op verlengbuis en 'n "infinity" mikroskoop lens. Kyk na WeMacro.com en Stackrail.info vir ringe, buise en ander bykomstighede.



Wide-angle lens

- * Wide-angle and fish eye lenses focus very close
- * Extensive depth of field



Photos:
Rob Sheppard (Top, left)
Paul Harcourt Davies + Clay Bolt (right)



Wide-angle lens

- * Getting low creates illusion that you are as small as the creatures in the photo
- * Perspective amplifies the subject
- * Use close-up filter to get a little closer



Piotr Naskrecki (photos shown) uses extension tubes but tubes can mess with short focal length lenses - try a filter.

This type of photo works well with small sensor cameras

Photos: Piotr Naskrecki - Canon 16-35mm lens



Notas:

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Venus Laowa 15mm wide-angle lens

Chinese-made 15mm ultra-wide-angle macro lens that focuses to 1:1

Photos: Thomas Shahar

Photo: Nicky Boy

Contents:

- * Definition of Macro
- * Basic principles
- * Equipment
 - * What should I buy?
 - * Lenses, extension, filters, etc
 - * Flash and lighting
 - * Tripods and support
 - * A macro studio
- * Getting started (studio)
- * Outdoor macro

Photo: Willem Semmelink

Notas:

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Equipment

- * Flash

=> No Flash
=> Built-in flash
=> Standard flash
=> Macro flash

=> Diffusers
=> Flash usage



Equipment

- * Flash
- No Flash

Expensive equipment does NOT guarantee good results!!

Photos: Willem Semmelink 2011
Nikon D200, 105mm micro-nikkor AIS



Direct on-camera flash (macro twin flash)



Natural light

Despite focus issue, this image has MUCH more emotion than the one on the left

Notas:

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Equipment

*** Flash**
Built-in flash

BENEFITS:
Cost-effective (built in)
Always available
Usually strong enough
Results very similar to ring flash

Photo: Willem Semmelink 2013
Illustrates Panasonic GX1 + diffused flash



Equipment

*** Flash**
Built-in flash

DRAWBACKS
Low powered,
Long macro lens or stack of extension tubes can throw shadow over the subject
Light property: flat, on-camera light = boring

Photo: Willem Semmelink 2013
Illustrates Panasonic GX1 + diffused flash



Notas:

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Equipment

* Flash Built-in flash

Typical use

Hold the diffuser in place while supporting the lens

Tripod use recommended, but for large-ish subjects flash can freeze minor vibrations, and hand-held is possible.

Photo: Willem Semmelink 2013



Equipment

* Flash Standard camera flash

Benefits

High powered

Can position light creatively

Multi-purpose: not dedicated only to macro

Photo: Willem Semmelink 2013
Illustrates Nikon SLR and flash



Notas:

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Equipment

* Flash

Standard camera flash

Drawbacks:

Bulky, clumsy with extra bracket, heavy to hand-hold.

Best used with camera on tripod and flash on extra bracket or its own stand

Can become tricky to fit between 60mm lens and subject (illustrated). Easier with 105 and 180/200 lenses



Photo: Willem Semmelink 2013
Illustrates Nikon SLR and flash

Equipment

* Flash

Standard camera flash

Use with little Giotto ball head:



Photo: M Versweyveld, Macro Forum www.FredMiranda.com
IDIII, Sigma 150mm Macro, 580EXII, Adorama flat/straight
Canon OC-E3, Giotto's MH 1004 mini ball head, JD Flip-it Lumb

Notas:

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Equipment

*** Flash**
Macro Flash

Benefits:
Compact + light

Made for macro

Photo: Nikon product brochure



Equipment

*** Flash**
Macro Flash

Drawbacks:
Expensive

Fiddly to setup, especially the Nikon version

Small, point-sources of light => harsh light

Light quality with setup as illustrated does NOT improve on other options
=> place lights off-camera for improved light
=> diffuse the lights

Photo: Willem Semmelink 2013



* Sonlig kan die Nikon infrarooi/lig seine oorweldig, en dan gaan die flits nie af nie. Ek gebruik liever kables.

Notas:

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Equipment

- * Flash
- Flash diffusers



The hawkler dragonfly came back again this morning - got the wife to take a pic of me taking some pics. You can see the dragonfly's tail under the diffuser. The weird thing is not some secret camera wear. I've managed to strain the tentacles in my wrist from taking too many photos.

Photo: Brian Valentine (LordV)



Photo: Keith (TheMikrobug)



Equipment

- * Flash
- DIY Flash diffuser for popup flash



Photo: Willem Semmelink, 2011



Notas:

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Equipment

* Flash



We pay serious money for macro flashes, only to learn we should take the flash off-camera



Front lighting is flat



Side lighting give better modelling

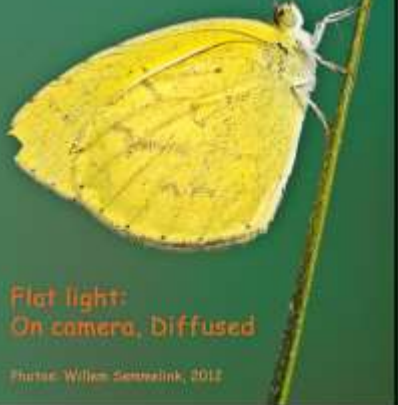


Photos: Willem Semmelink, 2011

Equipment

* Flash

Why diffusers?
Why off camera?



Flat light:
On camera, Diffused

Photos: Willem Semmelink, 2012



Hard light:
Directional,
not diffused



Balanced Light:
Directional, diffused

Notas:

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Photo: Willem Semmelink



Tripods and support: Bean bag



Photo: Kevin Keatley

Look for:

- * Material should not pick up too much dust, thorns and leaves: canvas or leather is good.
- * Soft but firm, and about A4 page size for a big DSLR
- * bumble bag joined at top can fit over pole or car window (doubles up for wildlife work as well)
- * big zip so you can easily remove beans for travel and replace once there
- * Add handles or a shoulder strap from old camera for easier carrying, and to hang bag from tripod for extra support

Photo: Robert Borden, 2012



Home Made Bean Bag



Possible accessory:
Right-angle viewfinder attachment



Notas:

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Equipment

* Tripods and support

Technique:
Position tripod as good as possible to obtain focus
Refine focus by focusing lens.
Use Live View or tethered computer screen to refine with focus slider

Luxury "spoil yourself" item: focus slider



Photos: Willem Semmelink



Alternative "slider"

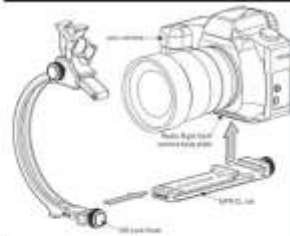
Basic setup: Tripod and cable release



RRS flash bracket

* Well made, Rolls Royce of brackets, but big and heavy

* Expensive



Photos: RRS Brochure



Notas:

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Wimberley flash bracket

- * Well made, Ferrari of brackets, but big and heavy
- * Expensive
- * Collapsable - easier to store



Photos: Unknown



Benefit of being useful with telephoto lenses as well as for macro



DIY Flash brackets

- * Sometimes work just as good as commercial products
- * Less expensive
- * Work well with small flashes



Photos: Unknown



Notas:

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Equipment

* Focus slides for precise work

- => For normal work a slide is a luxury convenience item
- => For focus stacking and photomicrography, a normal slide with millimeter calibration can be too imprecise and a special slide that can be adjusted in micrometers, is used.
- => Specialists in focus stacking nowadays use motorised slides

Velmex slide with optional motorised coupling



Luxury "spoil yourself" item, or essential equipment?



Markers for precise adjustment on a manual slide



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Photo: Willem Semmelink



Dank aan Cor Rademeyer by wie ek eerste leer makro werk doen het. Die agtergrond volg sy voorbeeld.

Notas:

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Die glas wyn is onontbeerlik, 'n oupa wat die kinders besig hou sodat jy kan werk. is baie handig. Hulle word net te gou groot. Een van die twee is reeds klaar met skool.



Notas:

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Notas:

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Background control

Artificial backgrounds look artificial



Assistant holding a green-coloured piece of cloth behind the flower to simplify the background.

Photo: Robert Barden, 2012



Although the background is greatly simplified, the artificial background makes the photo look like an illustration for a museum exhibition.

Vermyn sulke dooie swart agtergronde – dit lyk soos 'n illustrasie vir die museum.

Background control: color emotion

Natural background (pond)
Low ISO, high shutter speed darkens background
Flash on subject to expose
1/200, f/16, ISO 200



Subject disappears in background
Black has somber emotional value.

Photos: Willem Semmelink 2016

Natural background (pond)
High ISO, Low shutter speed lightens background
Flash on subject to expose
1/40 f/16, ISO 400 (4½ stops difference)

Risk of overexposing foreground:
Risk of camera shake



Subject stands out
Blue symbolises freshness, coolness, positive emotion

Notas:

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Dankie vir jou belangstelling.

