Bring Your Presentations to Life with 3D

How to get started with 3D in PowerPoint

About this deck

Office subscribers can add 3D models to documents and rotate the angle to show the right view. If you don't have a subscription, the deck simply shows a single view.

HIDROLOGI

(UTS)

Daftar pustaka

1. Sujono, S., Kensaku, *T. Hidrologi untuk Pengairan*, Jakarta,1977
2. Barren Vrisman, P. dkk., *Introduction to Hidrology*, London, 1977
3. Ray. K. L. Mau A. K., Joseph L. P., *Hidrologi untuk Insinyur*, Jakarta,1989
4. Ersin Seyhan, *Dasar-Dasar Hidrologi*, Gajah Mada University Pres, 1990
5. C. D. Soemarto, *Hidrologi Teknik*, Surabaya, 1986
6. Sri Harto, *Analisis Hidrologi*, Jakarta 1993
7. Yusron Lubis, *Hidrologi untuk Bangunan Air*, Bandung, 1984

Kedudukan hidrologi dalam beragam infrastruktur

Daur hidrologi

Water balance

HIDROLOGI DAN KEDUDUKANNYA

Fase 1

Pada fase ini tidak terdapat masukan sama sekali, sehingga proses yang ada semata-mata merupakan keluaran dari DAS, yaitu penguapan dan limpasan.

Akibat penguapan yang terjadi di bagian atas tanah, kelembaban makin menurun, yang berarti " **soil moisture defficiency"** (perbedaan antara "**field capacity**" dengan kelembaban nyata) makin besar.

Selama itu akibat aliran (Aliran dasar) sungai terjadi terus menerus, yang berarti pengatusan dari akuifer, yang mengakibatkan penurunan muka air pada akuifer.

Fase 2

jumlah hujan yang masih sedikit. Jumlah hujan ini sebagian besar tertahan sebagai intersepsi (*interseption*).

Selebihnya akan masuk ke dalam tanah sebagai air infiltrasi. Air ini masih akan digunakan untuk mengembalikan tanah ke kapasitas lapangan (*field capacity*), sehingga ada air yang mencapai akuifer, yang berarti aliran dasar tidak berubah.

Demikian pula bila limpasan dapat terjadi, masih akan tersimpan sebagai tampungan sebagai tampungan cekungan (*depression storage*) sehingga belum menambah aliran di sungai

Fase 3

Jumlah air hujan telah cukup besar. Intersepsi telah mencapai nilai maksimum, kondisi tanah telah berada pada kapasitas lapangan, dan kehilangan air akibat tampungan cekungan sangat kecil.

Jumlah air perkolasi (percolation) menaikkan kandungan air akuifer yang menyebabkan kenaikan aliran dasar sungai.

Demikian pula limpasan memberikan sumbangan pada perubahan debit sungai.

Fase 4 dan fase 5

Mengikuti fase 1

Istilah dalam hidrologi

- Interception
- Depression storage
- Surface detention
- Infiltrasi
- Soil moisture
- field capacity

Manfaat Hidrologi

- Ilmu lain yang berkaitan
- Beberapa ilmu pendukung
- kegunaannya

Ilmu lain yang berkaitan

Hydrography

- menyangkut kegiatan-kegiatan survei, sungai, pendataan, debit pengaliran dan tinggi air

Hydrometri

- menyangkut pengukuran dan pendataan aliran sungai, saluran-saluran dan pengaliran yang melewati suatu waduk/danau

Hydrogeologi

- mempelajari gerakan-gerakan dan sifat-sifat pengaliran di dalam tanah yang ditinjau dari sudut pandang ahli geologi

ilmu pendukung

Meteorologi

- **ilmu cuaca, tentang perubahan-perubahan di atmosfera**

Klimatologi

- **tentang iklim, terhadap temperatur udara, kelembaban, hujan, penguapan**

Soil science

- **antara keadaan tanah dan gerakan air baik, *run off* maupun aliran bawah tanah**

Mekanika fluida

- **sifat-sifat gerakan air**

Statistik

- **menganalisa untuk mendapatkan kumpulan dari suatu hasil pendataan**

kegunaannya

- Memprediksi debit banjir sungai
- Menentukan kebutuhan air bagi tanaman
- Menentukan kapasitas bangunan
- Menentukan pilihan dan berbagai alternatif bangunan sehingga secara teknis dan ekonomis menguntungkan

Hidrologi berdasarkan letak air

Surface hidrologi

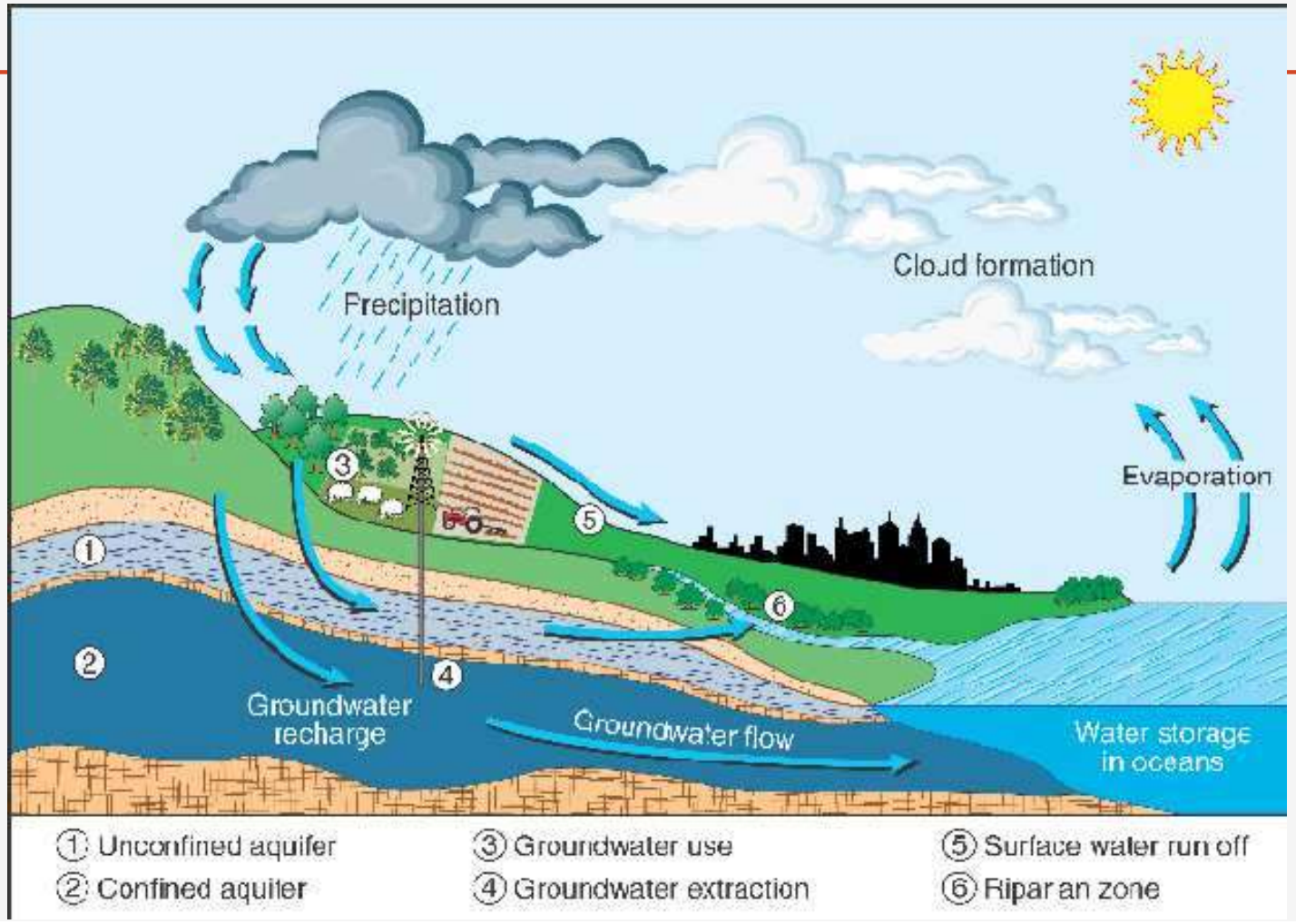
- yaitu hidrologi yang mempelajari air permukaan

Sub surface hidrology

- yaitu ilmu hidrologi yang mempelajari air di bawah tanah

DAS dan daur hidrologi

http://jnuenvis.nic.in/subject/freshwater/hydrocycle.htm



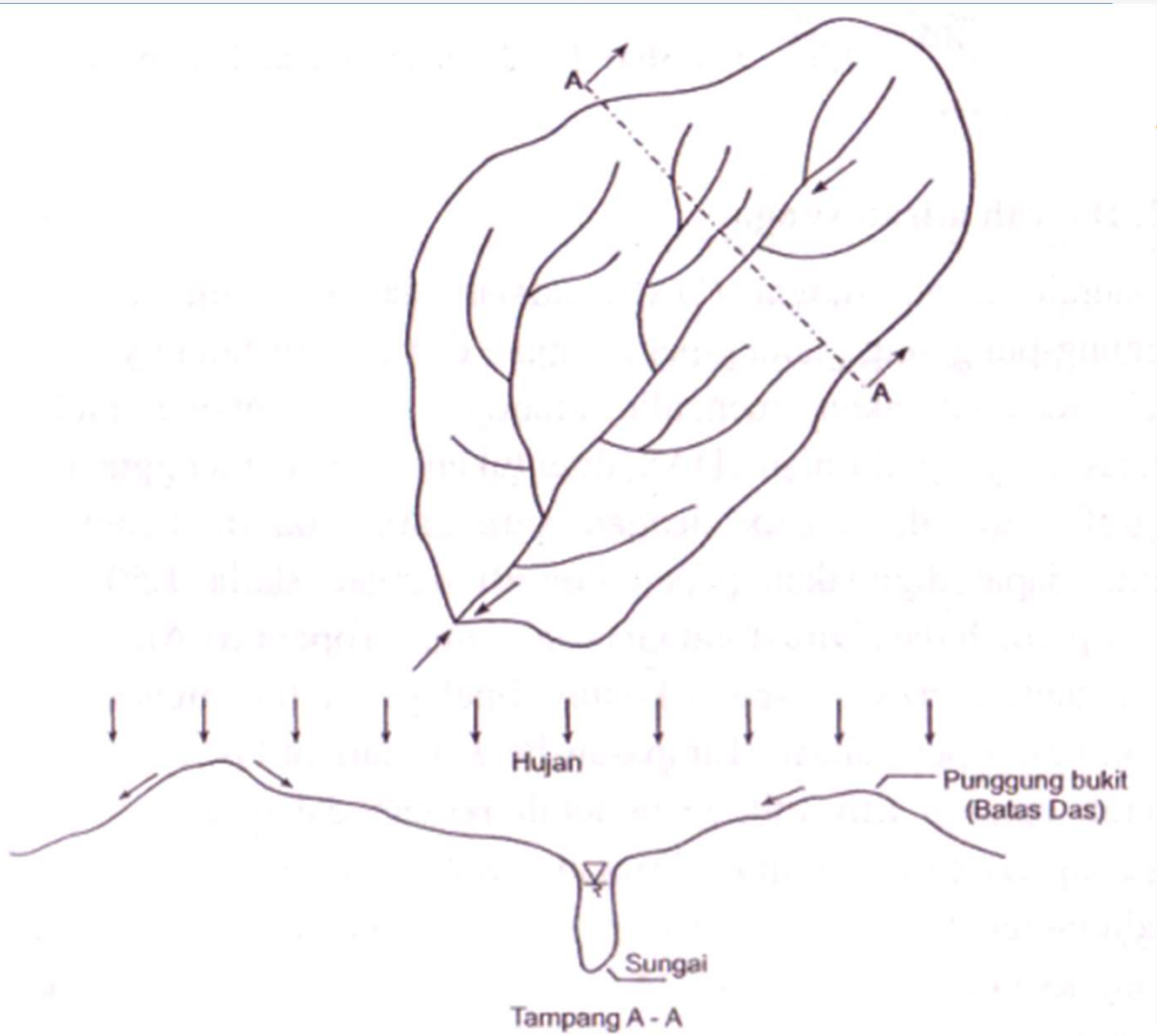
Definisi daerah aliran sungai (DAS)

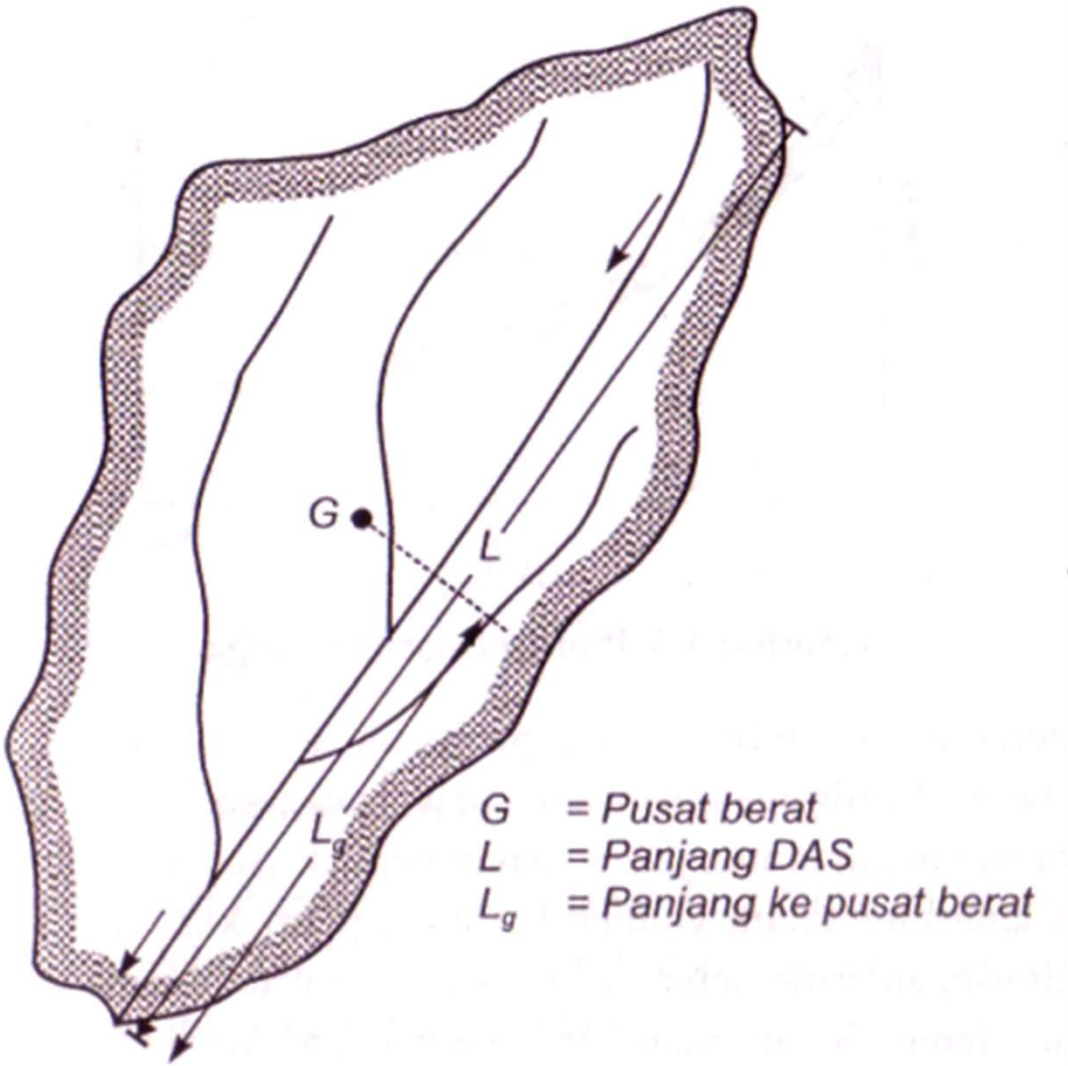
DAS adalah suatu daerah yang dibatasi garis imajiner yang dibentuk berdasarkan ketinggian dengan ketentuan air yang jatuh akan masuk ke dalam sungai yang bersangkutan

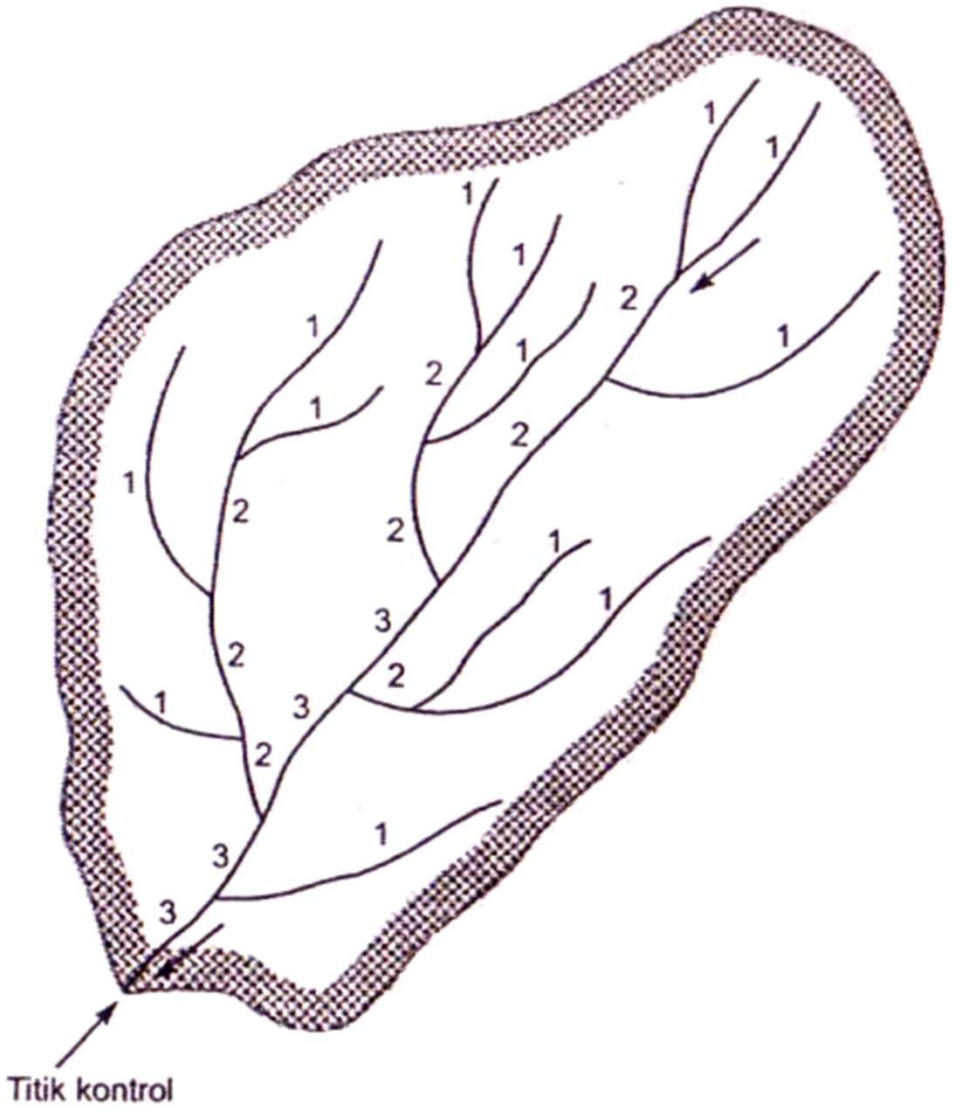
Nama DAS disesuaikan dengan nama sungai.

DAS kecil yang dibentuk anak sungai disebut sub das.

DAS




G
L
L_g
G = Pusat berat
L = Panjang DAS
L_g = Panjang ke pusat berat


Titik kontrol

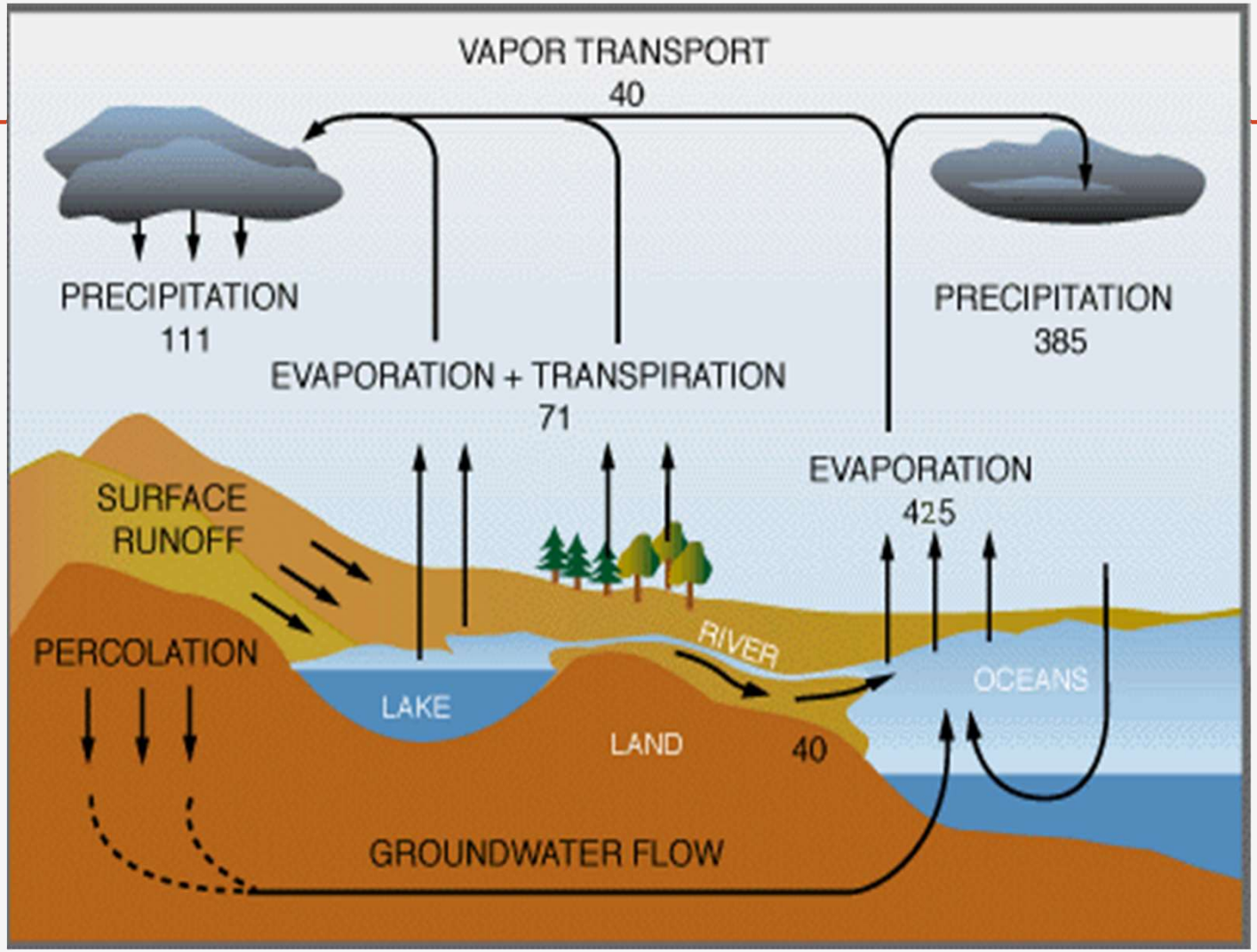
Definisi banjir

Banjir adalah suatu kondisi jika debit melebihi debit normal.

Besaran banjir dianalisis dalam kurun waktu tertentu yang disebut sebagai banjir periode tahunan.

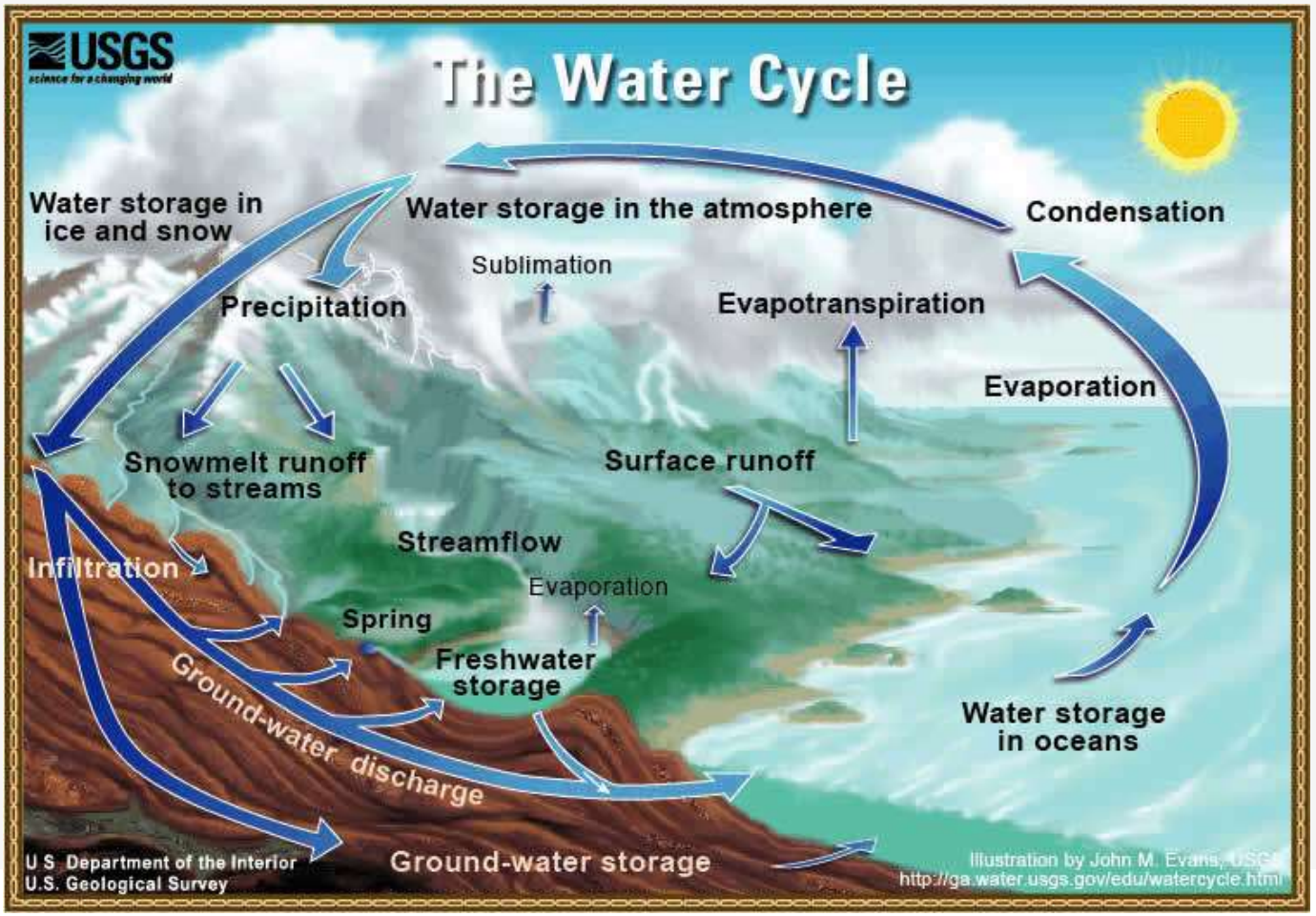
Periode ulang analisis biasanya 2, 5, 10, 50, 500, 1000, atau 2000 tahunan.

Arti periode ulang T tahun adalah hujan yang mungkin terjadi untuk kurun waktu T tahun, tetapi belum tentu terjadi setiap T tahun.


VAPOR TRANSPORT
40
PRECIPITATION
111
EVAPORATION + TRANSPIRATION
71
PRECIPITATION
385
EVAPORATION
425
SURFACE
RUNOFF
PERCOLATION
RIVER
LAKE
OCEANS
LAND
40
GROUNDWATER FLOW

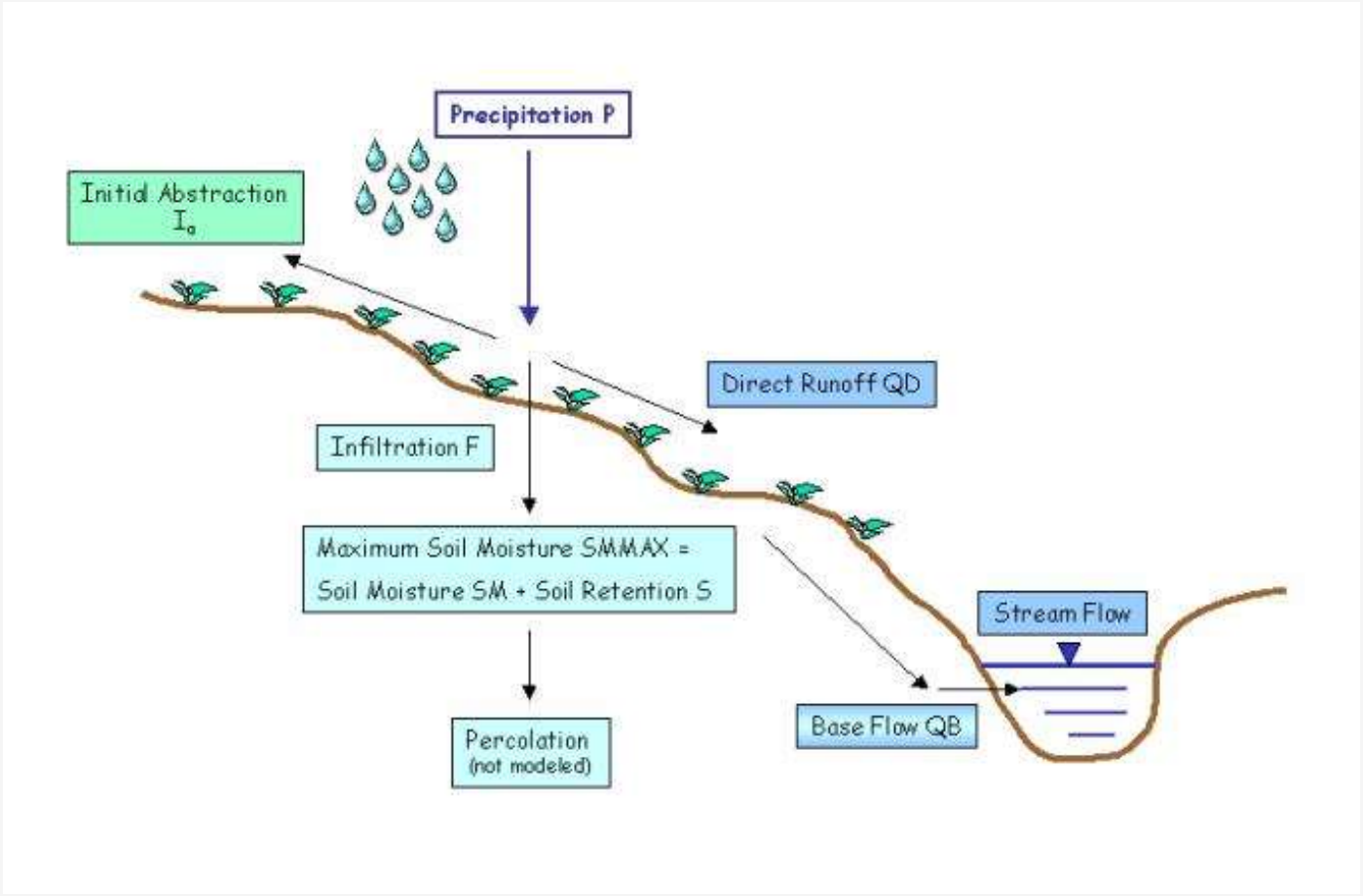
http://www.merrimack.org/watershed/waterbalance.html

salju

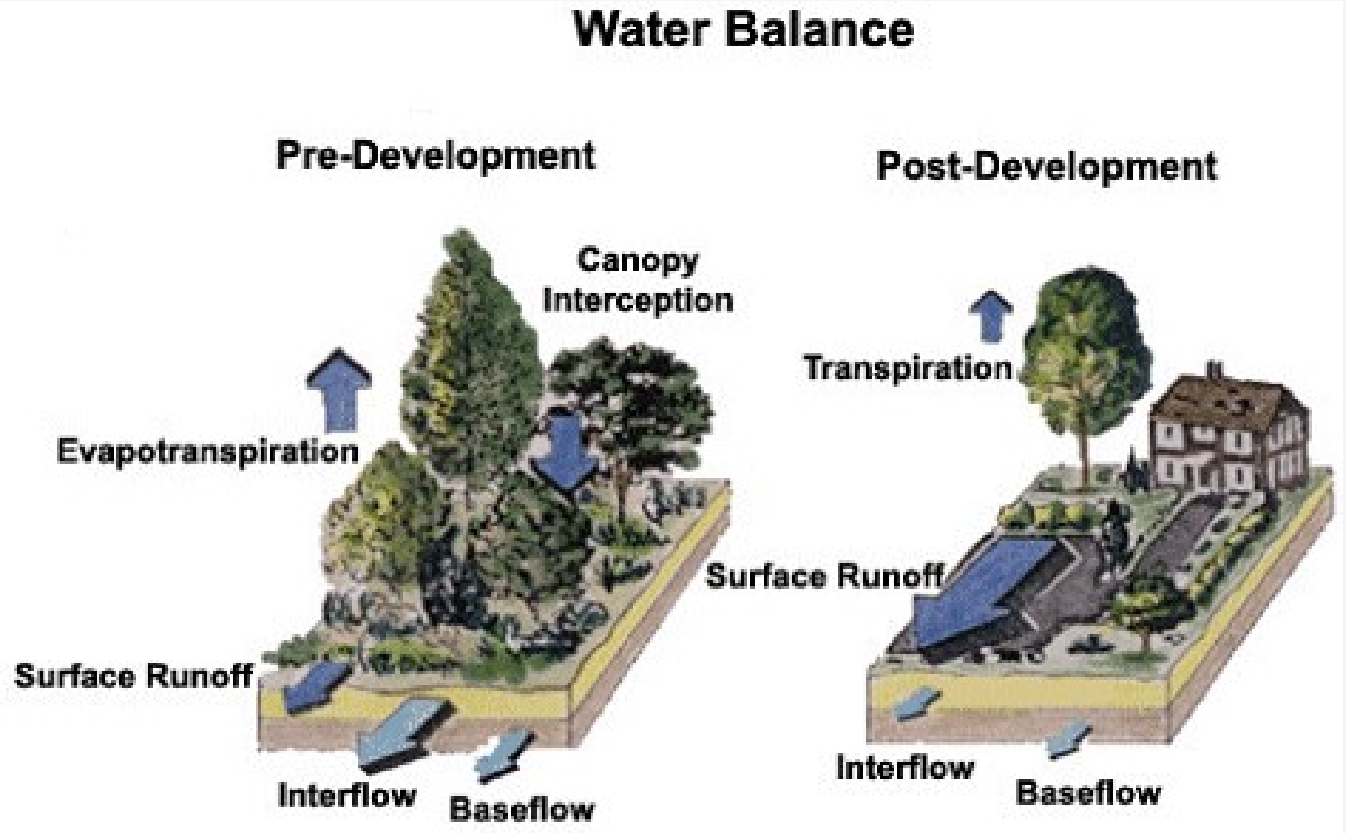


disederhanakan

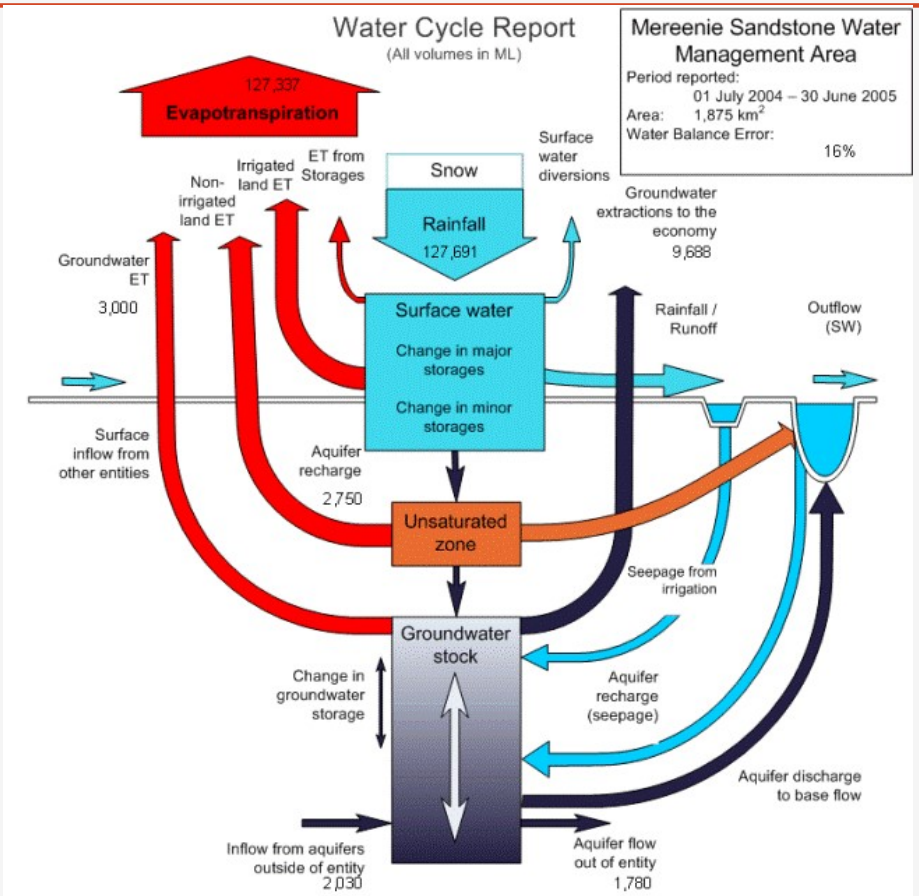
http://www.ce.utexas.edu/prof/maidment/grad/samuels/txrr/TxRRreport.htm



http://www.dnr.state.md.us/education/envirothon/impervious.html



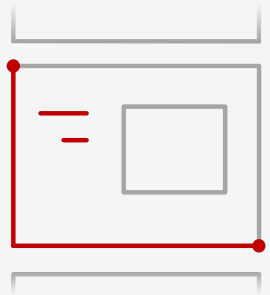
http://www.water.gov.au/RegionalWaterResourcesAssessments/SpecificGeographicRegion/tabbedreports.aspx?PID=NT_GW_250



NB: Please note volumes for some items could not be provided. For further detail, see water balance report.

Why Use 3D?

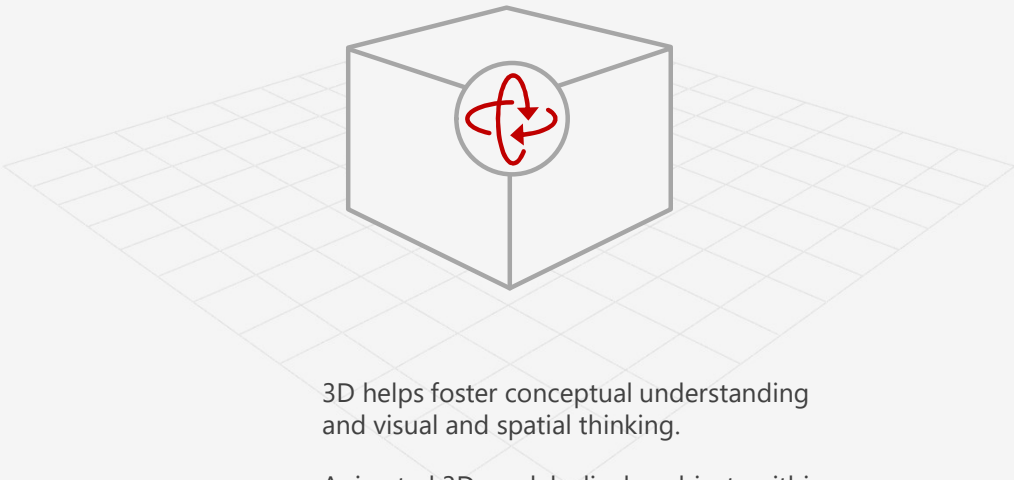
2D Slides



Slides are a static portrait.

Audience is passive and cannot interact.

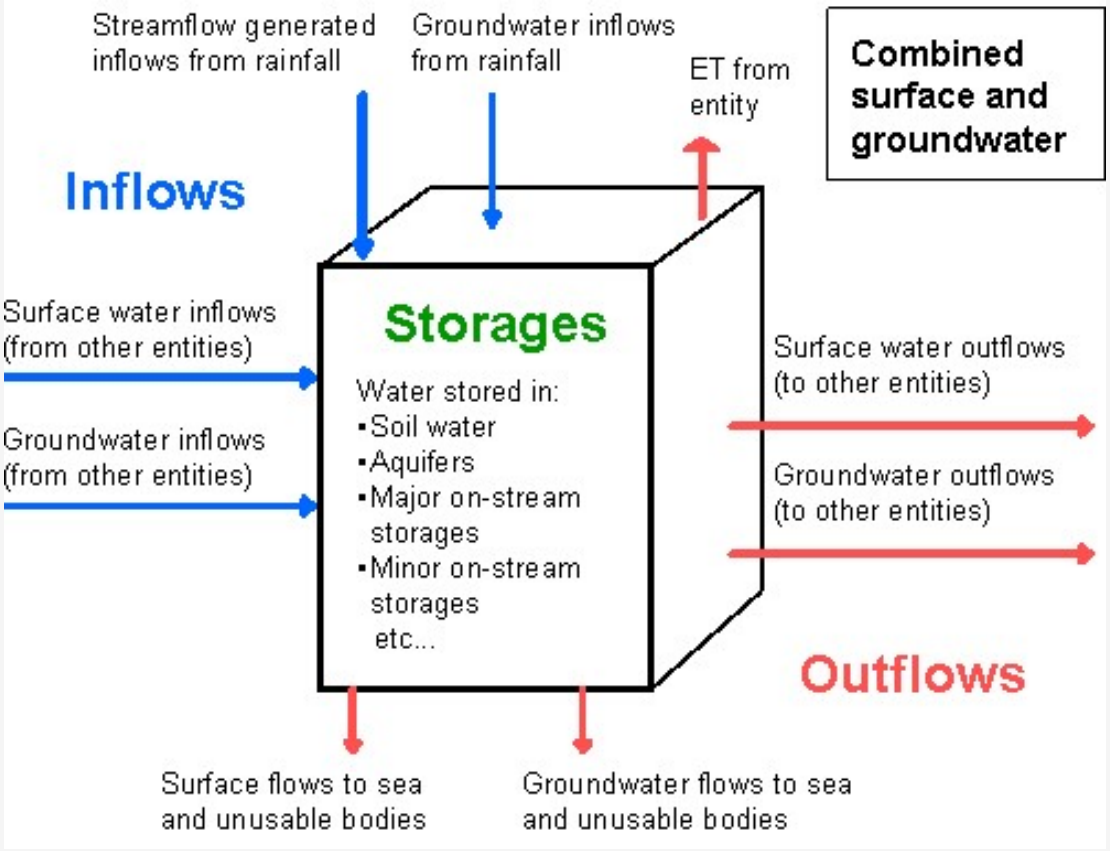
3D Models



3D helps foster conceptual understanding and visual and spatial thinking.

Animated 3D models display objects within space in ways text and images cannot.

http://www.water.gov.au/WaterAvailability/Waterbalanceassessments/Waterbalanceresults/index.aspx?Menu=Level1_3_2_3



Water balance at sub surface

http://megapolitan.kompas.com/read/2008/03/30/17085533/Hujan.Es.Juga.Landa.Bandung.
29/02/2008 di JKT

NERACA AIR

WATER BALANCE

Water Balance/ Neraca Air

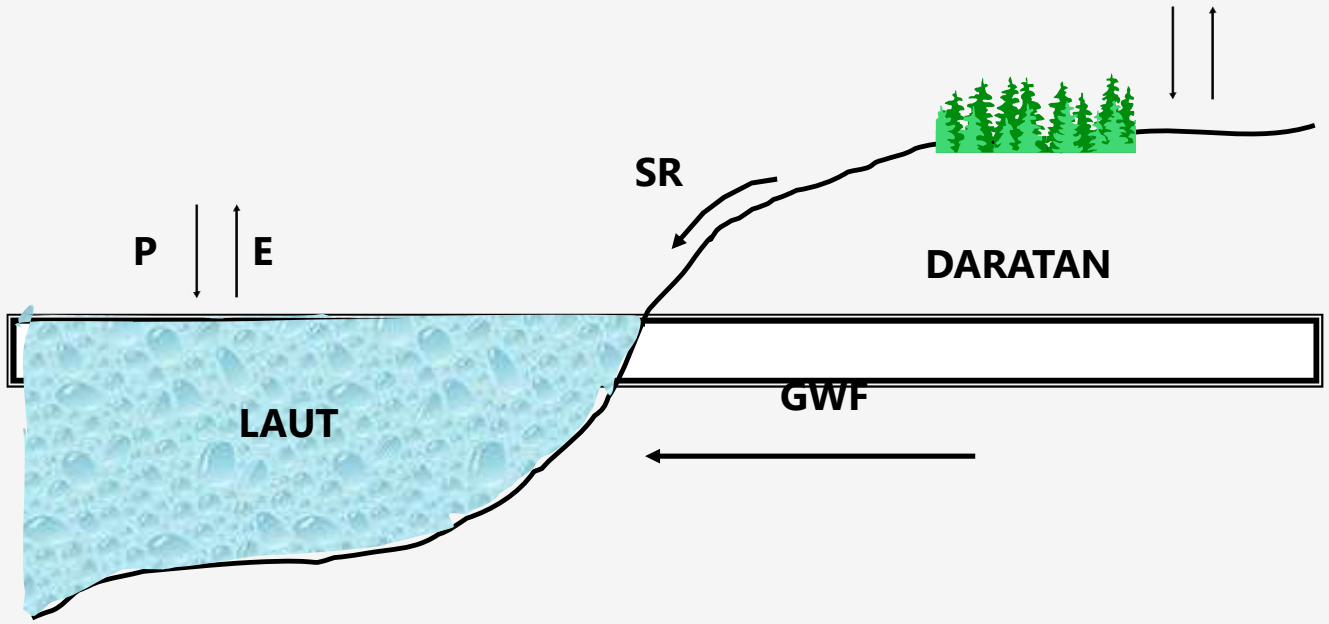
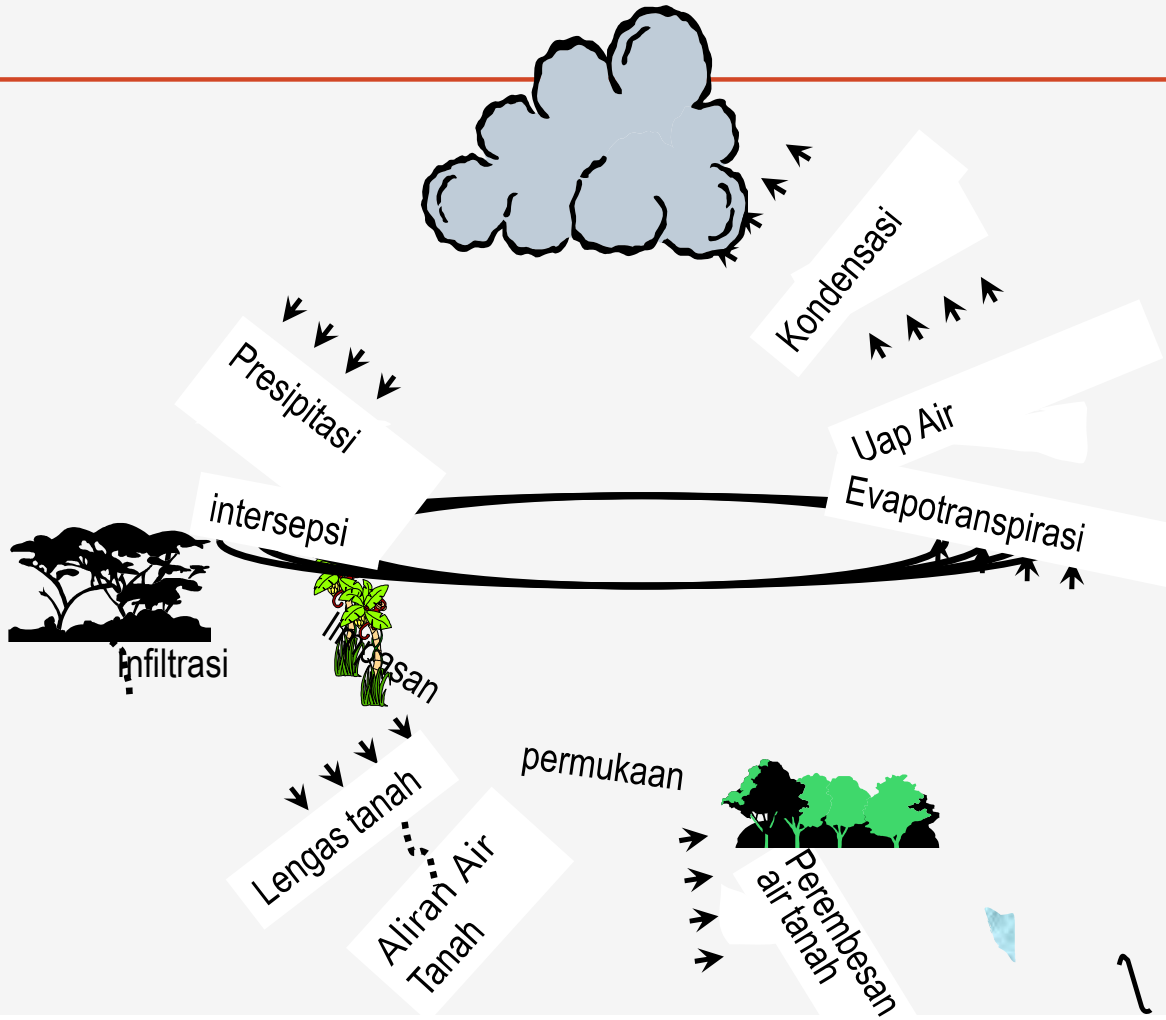
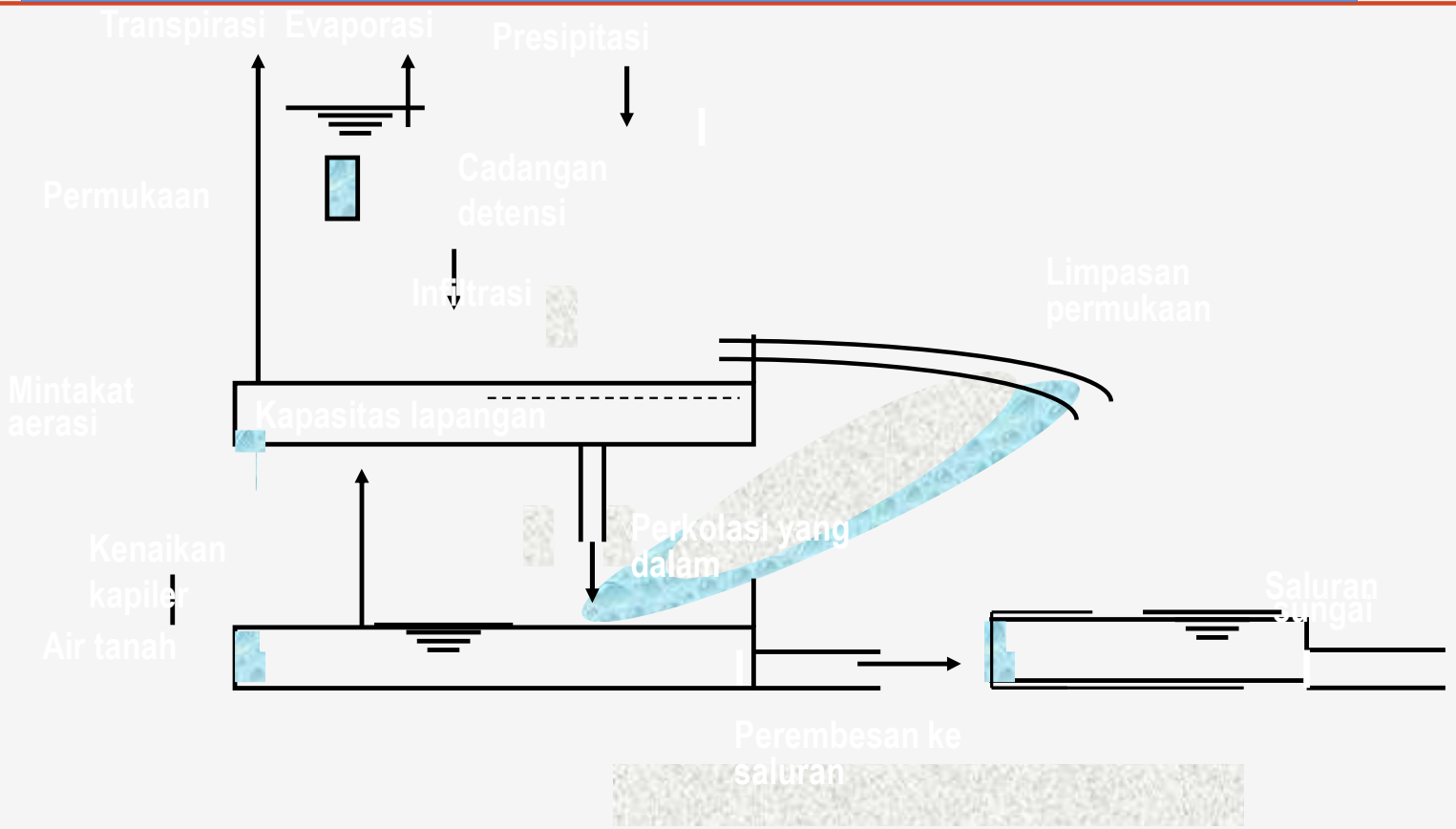


Diagram disederhanakan dari daur hidrologi (Ward,1967)



Model Daerah Aliran Sungai Rekayasa (Allen, 1975)



Neraca Air/Water Balance untuk Lautan berlaku persamaan :

$$P = E - SR \pm \Delta S - GWF$$

- P = presipitasi (hujan)
- E = penguapan (evaporsi)
- □S = " change in storage"
- SR = "surface run-off "
- GWF = "Ground Water run-off " aliran air tanah

Water Balance untuk Daratan berlaku persamaan :

$$P = E + SR \pm \Delta S + GWF$$

- P = presipitasi (hujan)
- E = penguapan
- □S = perubahan dalam tampungan (storage)
- SR = aliran permukaan (surface run-off)
- GWF = aliran air tanah

Dengan memperhatikan persamaan diatas secara umum Ven Te Chow (1964) menuliskan :

Dengan

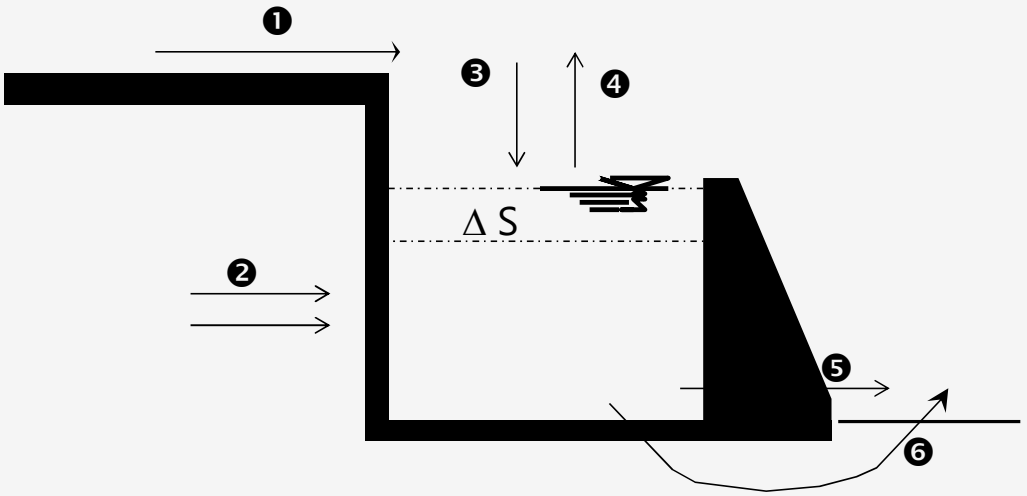
$$I - O = \pm \Delta s$$

I = Aliran masuk "in flow"

O = Aliran keluar/kehilangan "out flow"

ΔS = "change in storage'

Water balance untuk sebuah waduk



Untuk $\Delta S > 0$

$1 + 2 + 3 = 4 + 5 + 6 \pm \Delta S$

Untuk $\Delta S < 0$

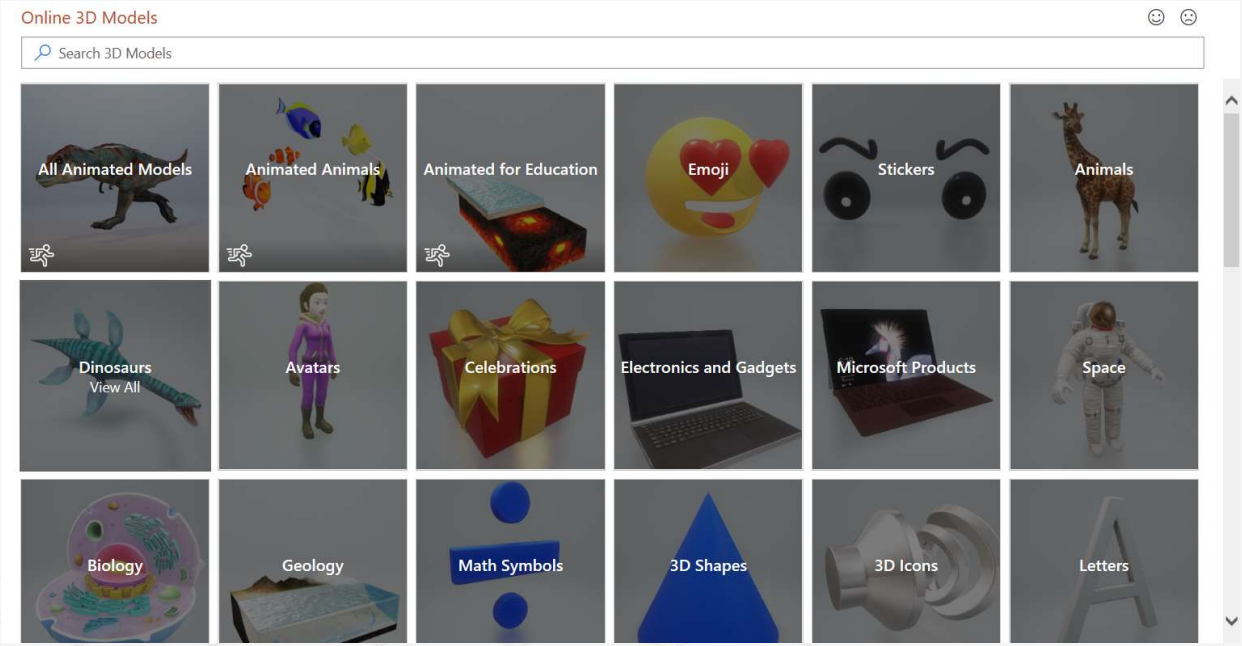
$1 + 2 + 3 \pm \Delta S = 4 + 5 + 6$

❶ = "surface run-off"
❷ = "sub-surface run-off"
❸ = presipitasi (hujan)
❹ = evaporasi (penguapan)
❺ = kebutuhan air (irigasi, tenaga listrik)
❻ = kebutuhan /rembesan

No 3D Model? No Problem!

Microsoft makes it easy to insert a 3D Model! Simply go to the Insert Ribbon and click on the 3D Models option. Choose the option for online sources gallery (shown at the right). Select the model you wish to insert.

3D Models is a subscription-only feature. If you have a subscription, the next slide shows you how it works in a new presentation.

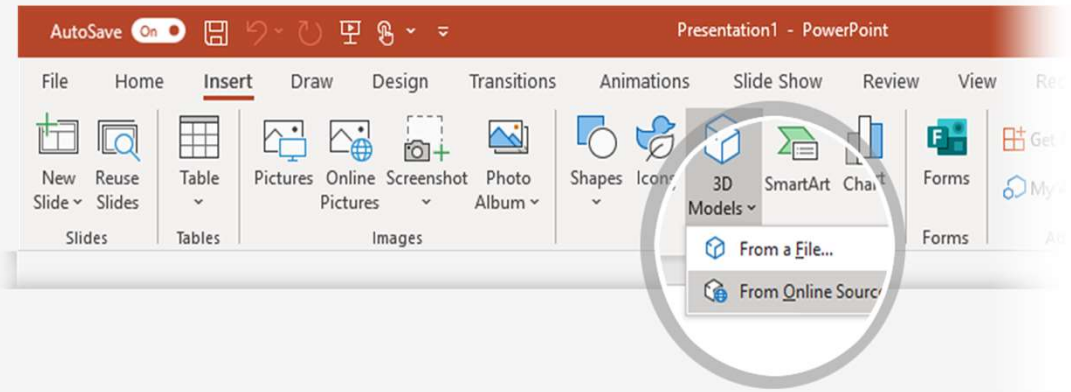


How to Insert a 3D Model

To Insert a 3D Model:

1. From the Ribbon, go to
   Insert > **3D Models**
   -or-
   Insert > **3D Models from Online Sources**

   That will open the Online 3D Models Window where you can search or browse categories of various 3D models, right from within PowerPoint.



Hint: You need to be online when you add the model.

2. To search for a keyword, **type a word** or phrase into the search box at the top of the window and press **enter**.

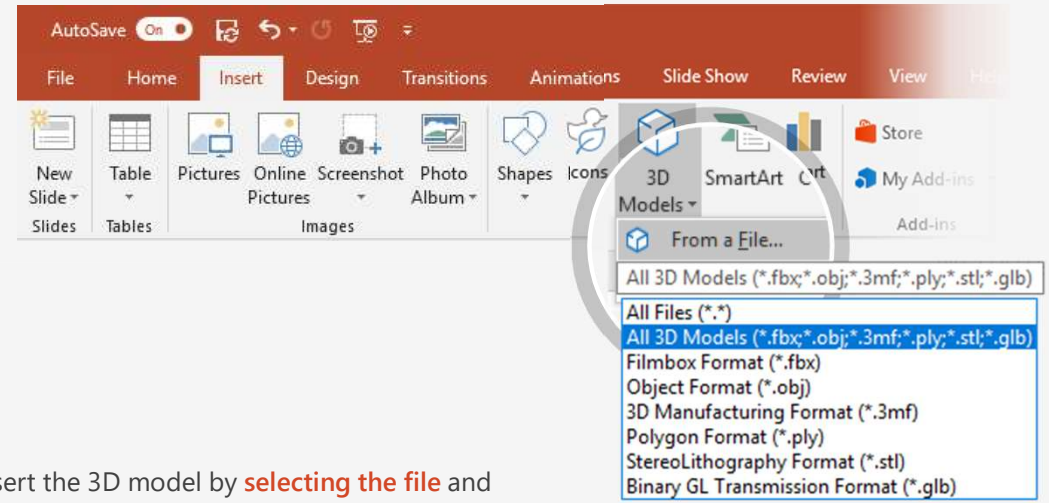
3. To insert a 3D Model, **click** or **tap** on the model > **Insert**.

   The 3D Model will now be downloaded and placed onto your PowerPoint slide.

Have Your Own 3D Model? You Can Import It!

PowerPoint allows you to import a variety of popular 3D model formats.

So no matter your workflows outside of PowerPoint, you should be able to find a suitable solution to make your 3D models portable and presentable to virtually anyone, anywhere and on any device (with just a few quick modifications)



To Insert a 3D Model:

1. Go to **Insert** > **3D Models from a File...**

   This will open the Insert 3D Model Window where you can search your computer, network or cloud drive for any saved 3D models.

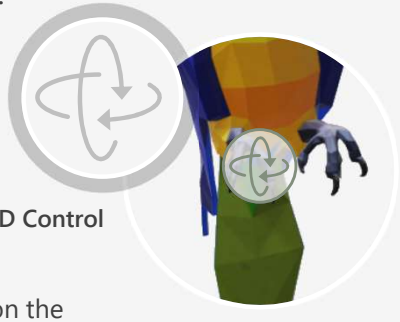
2. Insert the 3D model by **selecting the file** and clicking on **Insert**.

   The 3D Model will now be placed onto your PowerPoint slide

Two Ways to Position and Rotate Your 3D Model

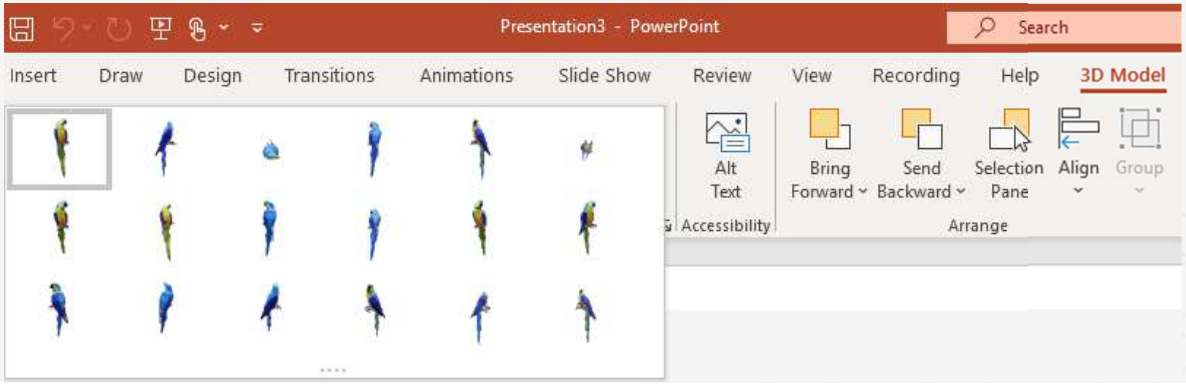
Try them yourself with the parrot on the right:

1. Click on your 3D Model: **Click and hold** on the 3D control to rotate or tilt your 3D model up, down, left, and right.



3D Control

2. Alternatively, with your model selected, on the Ribbon, in the 3D Model Tool Format tab, you can **click** on 3D Model Views gallery to apply one of the various **position views.**



Pan and Zoom

To resize or crop your 3D model within a frame, you can use the pan and zoom tool.

1. Select your 3D model > **3D Model** > **Pan & Zoom**

   Note: the Pan & Zoom tool acts like an on/off (toggle) switch. Once pressed, you'll see a gray box around the Pan & Zoom button to indicate the feature is activated. Press the button again to deactivate the Pan & Zoom feature.

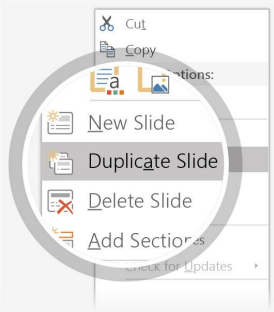
2. With the Pan & Zoom button enabled, now **move, rotate, and resize** your 3D model.

3. When you are finished editing, click the **Pan & Zoom** button again to exit Pan and Zoom mode.

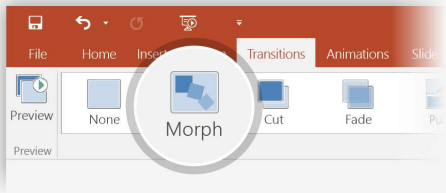
Now Animate Your 3D Model Using the Morph Transition

Try it yourself with the parrot on the right:

1. Duplicate this slide: Right-click the slide thumbnail and select **Duplicate Slide**.



2. In the second of these two identical slides, change the 3D Model on the right in some way (rotate, move, or resize), then go to **Transitions** > **Morph**.



3. Return to the first of the two slides and press the **Slide Show** button and then select **Play** to see your parrot morph!

Animate Your 3D Model Using the Animations Tab

Try it yourself with the parrot on the right:

1. Select the 3D Model on the right, then go to **Animations** > **Turntable**

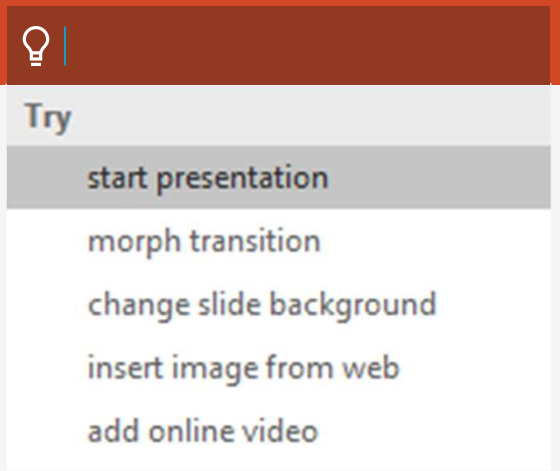
Hint: **Effect Options** gives you even more options for **Turntable**.

2. Explore the other new animations designed specifically for 3D models: **Arrive**, **Swing**, **Jump & Turn**, and **Leave**.

3. Click Add Animation to combine the new 3D animations with other classic 2D animations, such as **Fade**, **Grow/Shrink**, or one of the many **Motion Paths** animations to test and see what is possible.

More questions about PowerPoint?

Select the **Tell Me**  button and type what you want to know.



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SELECT THE ARROW WHEN IN SLIDE SHOW MODE