A. Inspection

1) Standing - alignment, foot structure, hip/pelvis
2) Gait – Observe (is there a limp?)
3) Supine – effusion, erythema, quadriceps muscle (atrophy?)
B. Palpation

1) Warmth, Crepitus, Effusion
2) Tenderness – medial/lateral joint lines, MCL, LCL, patellar facets, quadriceps insertions, patellar tendon, IT Band, pes anserine bursa

Milk test for effusion

Start at inferior pole of patella, drop down and move medially and laterally to joint lines. Then condyles and plateaus, Then patellar tendon. For patella check poles and facets.
Anatomy of the knee joint (right) (anteromedial aspect)

- Edge of Med. Femoral Condyle
- Patella
- Med. Epicondyle of Femur
- Tibial Tubercle
- Adductor Tubercle
- Medial Joint Line
- Area of Pes Anserine Insertion

The lateral collateral ligament

(Don't do this in acutely injured knee.)

(KEYPOINT - find fibular head.)
C. Range of Motion

--Need to check both hip and knee ROM as hip pathology can refer pain to the knee.

1) Hip ROM: flexion, internal and external rotation

![Diagram showing range of motion](image)
2) Knee flexion and extension  (know difference between AROM and PROM)

![Diagram of knee flexion and extension](image1)

3) Hamstring flexibility  (compare to other side)

![Diagram of hamstring flexibility test](image2)

Popliteal angle test: hip flexed to 90, knee flexed to 90, then examiner passively extends knee till it reaches its resistance.
D. Manual Muscle Testing / Neurovascular exam

1) Knee Extension/Flexion (MMT of quadriceps and hamstrings)
2) Distal Neurovascular: pulses, gross sensation, capillary refill.

Dorsalis pedis pulse found best in line with the second toe.

E. Special Tests

1) Patellar Examination
   a) Q-angle, be able to visualize varus or valgus
   b) Patellar compression/grind
   c) Patellar glide/tilt
   d) Apprehension sign
Patellar compression/grind test (PFPS, chondromalacia patellae)

Have patients knee bent at 20-30 degrees, hold their patella in place and have them slowly activate their quadriceps muscles and to stop if it hurts.

Patellar apprehension and tilt test (patellar instability)

J-sign: patella should not drop laterally in full extension, if it does it can be indicative of poor patellar tracking as seen in PFPS.
2) Ligamentous testing
   a) Lachmans (ACL)
   b) Posterior drawer/sag (PCL)
   c) Valgus/Varus tests (MCL/LCL)

Lachmans test

Lachmans tip: if your hands are small or patients leg is large, you can rest their thigh on your knee to get better support.

Posterior drawer and sag sign

90 degrees
It may help to abduct the leg over the side of the table

3) Meniscal testing
   a) Joint line tenderness
   b) McMurrays test
   c) Apley compression test
   d) Thessaly test

McMurrays: patient HAS to be able to fully flex knee. Once knee fully flexed, internally rotate lower leg (lat meniscus), straighten leg past 90 degrees, fully flex then externally roatate lower leg (med meniscus) and straighten past 90. Fingers should be on joint line, positive test is a painful click or pop.
Apley’s compression test

This test should be done on a smooth surface and without shoes on

Thesally’s test
F. Knee injections superior lateral and inferior lateral

Superior lateral approach, patient supine, knee with gentle flexion

Find the superior lateral edge of the patella, drop down and move slightly proximally. Aim straingt across leg with no needle angulation.

Inferior lateral approach, patient seated, knee flexed to 90 degrees

Find the inferior patellar pole, drop distally and laterally until you feel a nice soft spot. Insert the needel in the middle of the soft spot, aim for the medial femoral condyle with no needle angulation.
G. XRAY Interpretation

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If evaluating for OA, make sure the x-rays are weight bearing. The PA (Rosenburg or tunnel view) can demonstrate OA more prominently.

-- In the AP and PA views evaluate joint space narrowing, tibial spine sharpness (normal is appalachian mts, abnormal is the alps), overall alignment. Don’t forget to look for tibial plateaua fractures and OCD lesions (medial femoral condyle).

-- In the lateral view, look for bone spurs on the patella, effusion (separation of prefemoral and suprapatellar fat pads).

-- The sunrise view is great for patellofemoral arthritis, patellar tilt and femoral groove depth.
References:
Knee exam description: http://orthosurg.ucsf.edu/patient-care/divisions/sports-medicine/conditions/physical-examination-info/knee-physical-examination/

Knee exam video: https://www.youtube.com/watch?v=eRPvoNe9Aho

Notes: